sustainability

MDPI

Article

Grit and Career Construction among Chinese High School Students: The Serial Mediating Effect of Hope and Career Adaptability

Chengxi Zhai [1,*], Xiaoyun Chai [2,3,*], Silu Shrestha [1] and Nian Zhong [1]

[1] Department of Psychology, Wuhan University, Wuhan 430072, China
[2] Center of Health Administration and Development Studies, Hubei University of Medicine, Shiyan 442000, China
[3] Department of Applied Psychology, Hubei University of Medicine, Shiyan 442000, China
* Correspondence: waystudy@whu.edu.cn (C.Z.); xy_chai@hbmu.edu.cn (X.C.)

Abstract: Career construction is a crucial developmental task of adolescence. Previous research widely examined predictors of career construction resources but rarely explored the antecedents of career construction behaviors. Based on the career construction model of adaptation, this study explored how adolescents' grit affects career construction behaviors. Data were collected from a cross-sectional survey. Participants were 573 students (M_{age} = 15.34, SD = 0.51; 51% boys) drawn from two public high schools. The results showed that grit positively predicted students' career construction. Meanwhile, hope and career adaptability mediated the association between grit and career construction. The serial mediation analysis indicated that students with high grit tended to report a high level of hope, which increased career adaptability and consequently promoted career construction. This study contributes significant knowledge of how precise interventions can be developed for high school students to assist them to cope with career challenges.

Keywords: grit; career construction; hope; career adaptability; high school students; career construction model of adaptation

Citation: Zhai, C.; Chai, X.; Shrestha, S.; Zhong, N. Grit and Career Construction among Chinese High School Students: The Serial Mediating Effect of Hope and Career Adaptability. *Sustainability* **2023**, *15*, 3608. https://doi.org/10.3390/su15043608

Academic Editor: Lucian-Ionel Cioca

Received: 18 November 2022
Revised: 6 February 2023
Accepted: 13 February 2023
Published: 15 February 2023

1. Introduction

Since entering the 21st century, economic globalization and continuous technological advances have led to huge and rapid changes in the career development environment [1]. In the VUCA (an acronym for volatility, uncertainty, complexity, and ambiguity) era [2], adapting to an uncertain and rapidly changing environment and coping well with tasks at different stages of career development have become increasingly pivotal for the sustainable development of individuals [3–5].

Career construction theory states that career development is the dynamic process of adapting the subjective self to the external objective world while pursuing an important life theme [6–10]. At different stages of life, there are varying career development tasks. Career construction is driven by career development tasks and generated by responses to these tasks [7]. Adolescence is the exploration stage of career development, when teenagers explore their selves and their environment and contemplate their educational and career planning [7,11–13]. For adolescents, adequate career construction may promote clear career planning [14], increase academic performance [15], and improve life satisfaction [16]. Insufficient career construction may impede career preparation and adaptation [17]. Thus, career construction is a crucial developmental task of adolescence.

Previous research widely examined predictors of career construction resources [18–20]. However, few studies explored the antecedents of career construction behaviors. In recent years, researchers began to pay more attention to the role of individuals' characteristics in affecting career construction behaviors, such as core self-evaluations [21], self-esteem [22],

and future time perspective [23]. Grit, as a personality trait, is essential for adolescent development in schools. Numerous studies indicated that grit is a significant predictor of academic achievement [24–26], but few studies explored the association between grit and career construction among adolescents.

In Chinese education and culture, people value the development of positive qualities such as grit because they are thought to improve students' academic performance [27,28]. Meanwhile, most high schools in China still do not have a well-developed career education system to help students with career construction [29,30]. In fact, under the National College Entrance Examination (NCEE or Gaokao) system, many Chinese teachers and students emphasize academic achievement but pay less attention to career construction. In this examination-oriented learning culture, Chinese teachers and students are repeatedly taught the importance of exam preparation [31]. They lack enough resources and motivation to engage in activities that seem less relevant to academic learning [32]. Thus, this study examined whether grit predicts career construction among Chinese high school students and clarified the underlying mechanisms. Our results contribute to developing the understanding of the antecedent variables of career construction, particularly the potential role of grit. We expect the empirical evidence and practical implications of this study to guide the future career education of high school students in the Chinese education system.

2. Research Theory and Hypothesis

2.1. Career Construction Model of Adaptation

The career construction model of adaptation (CCMA) consists of four dimensions: adaptive readiness (adaptivity), adaptability resources, adaptation responses (adapting), and adaptation results, which form a sequence of adaptation [9,19,33]. Adaptive readiness (adaptivity) refers to the trait-like psychological characteristic of readiness and willingness to change. Adaptive readiness activates adaptability resources, a psychosocial construct that conditions self-regulation resources for coping with career changes. Adaptability resources shape adaptation responses (adapting), which are the actual beliefs and behaviors around preparing for occupational environment changes and career decision-making. Adaptation results, measured in terms of the quality of person–environment fit, such as satisfaction, success, and commitment, are the outcomes of adapting responses. In brief, adaptive readiness activates adaptability resources that condition adapting responses to generate adaptation results [33].

We investigated the first three dimensions of the CCMA in this study. Career construction, under the third dimension of the CCMA, represents the adapting responses to the career tasks encountered [34]. For high school students, this includes self-recognition, career exploration, occupational decision-making, and preparation for the chosen career [7,33]. Savickas and his colleagues developed the Student Career Construction Inventory to measure the adapting responses of adolescents and emerging adults [33]. Based on the CCMA, we developed a suitable framework to test how adaptive readiness and adaptability resources motivate the sequence of career construction behavior.

2.2. Grit and Career Construction

Grit is "trait-level perseverance and passion for long-term goals" [25,26]. Despite setbacks, individuals with high grit can preserve their chosen goals for months or years [35]. Career adaptation is a dynamic and self-regulatory process [6,9], while grit is strongly positively associated with self-regulation [24]. Thus, grit can be seen as a component of adaptive readiness in the CCMA [36]. Previous studies also confirmed that grit positively predicts career exploration [37], career decision-making [38], and career preparation [39,40], which are other main components of career construction. Therefore, we developed the following hypothesis:

Hypothesis 1 (H1). *Grit positively predicts career construction.*

2.3. Grit, Hope, and Career Construction

Hope is defined as a positive state of motivation to achieve success by striving to achieve a predetermined goal through various pathways [41]. It contains three main components: goals, pathways, and agency, which are interrelated and guide individuals to achieve their goals [41]. Pathways offer tactics for achieving the goal, agency empowers individuals to overcome various difficulties and obstacles [42], and hope enables one to contemplate the options available in all contexts and motivates the individual to pursue them [43]. As one of the four components of psychological capital [44], hope has received much attention from career construction theorists [45] and is seen as one of the significant aspects of adaptive readiness in the CCMA [23,46]. People with a higher level of hope are more prepared and willing to engage in upcoming career missions and challenges [23], while a positive attitude toward the future can lead to a high level of career adaptation [47]. Previous studies showed that hope positively predicted adapting responses. Stronger hopeful thinking was related to more proactive career management behaviors [48]. As mentioned earlier, career construction represents adapting responses to the career tasks encountered [34]. This means that hope can predict career construction. Meanwhile, studies indicated that grit has a positive relationship with hope [49,50]; grittier people have stronger motivation to achieve their goals and show a higher level of hope. Based on the above literature review and empirical evidence, we developed the following hypothesis:

Hypothesis 2 (H2). *Hope is a mediator between grit and career construction.*

2.4. Grit, Career Adaptability, and Career Construction

Career adaptability denotes a psychosocial construct, representing an individual's preparation and resources to cope with current and future career development tasks, career transitions, and personal trauma [8]. Concern, control, curiosity, and confidence constitute career adaptability, which refers to general adaptability resources and self-regulation strategies that individuals use to cope with career construction tasks [8]. According to the career construction theory, career adaptability is the second dimension of the CCMA. As a mediator, career adaptability denotes adaptability resources, which are mobilized by adaptive readiness and shape adapting responses [9,20]. Substantial studies confirmed that career adaptability predicts adapting responses [51–54] such as students' career construction [21,23,55]. Meanwhile, through the self-regulatory process, a recent study confirmed that grit can positively predict career adaptability [56]. Individuals with passion and perseverance have more self-regulatory resources to deal with current and anticipated tasks and challenges. Consequently, we developed the following hypothesis:

Hypothesis 3 (H3). *Career adaptability is a mediator between grit and career construction.*

2.5. The Serial Mediating Role of Hope and Career Adaptability

According to the CCMA, hope is considered a trait-like adaptive readiness [46]. Career adaptability is the most important resource, mediating between adaptive readiness and adapting responses [19,20]. Previous research indicated that hope could positively predict career adaptability [46,57,58]. Based on the above analysis and literature, we postulated that, among various mediating factors between grit and career construction, hope precedes career adaptability. Consequently, we developed the following hypothesis:

Hypothesis 4 (H4). *Hope and career adaptability play serial mediating roles in the relationship between grit and career construction.*

Operating within the framework of the CCMA [18,19], we designed this study to explore the relationship between grit and career construction among Chinese high school students. We expected to clarify its underlying psychological mechanisms by examining grit, hope, career adaptability, and career construction simultaneously. The hypothesized

serial mediation model is shown in Figure 1. Based on our research into the model, in this article, we provide practical insights that may aid efforts to promote career construction and cultivate Chinese high school students' capability to cope with career challenges.

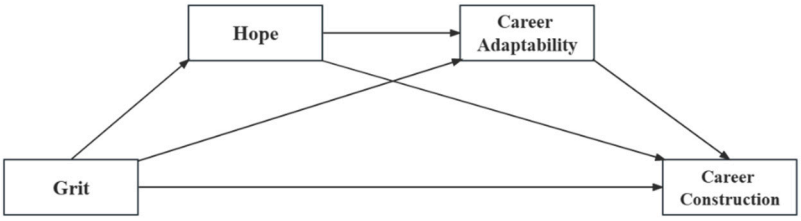

Figure 1. The hypothesized serial mediation model.

3. Materials and Methods

3.1. Participants and Procedure

Participants were 10th-grade students from two public high schools in Hubei province, China. We chose 10th-grade students because they are in the career exploration stage, which requires them to complete various career-related tasks [30,59]. The study was conducted near the end of the school semester in 2021. We randomly selected three classes from School A (out of 12 classes in grade 10) and ten classes from School B (out of 25 classes in grade 10). Both schools are located in the same city. School A is a general public high school and School B is a provincial model public high school. The directors of the two schools agreed to allow us to conduct the study in their schools. In total, 573 students participated (M_{age} = 15.34, *SD* = 0.51; 51% boys). All students completed the paper version of the questionnaire in the classroom during their evening study sessions. They were required to sign an informed consent form to indicate that they voluntarily participated in the study. The students were free to decline to participate at every stage in the study. Before the participants were told that their responses would be confidential, the purpose of the project and procedures were explained. Participants who submitted blank or careless responses were excluded from the analysis. A total of 671 questionnaires were distributed and received, of which 573 were valid (85.39%).

3.2. Measures

3.2.1. Grit

The Short Grit Scale (Grit–S) is an 8-item scale designed to measure the capacity to persevere and sustain interest in long-term goals [26]. All items were scored on a five-point Likert scale from 1 = not at all like me, to 5 = very much like me. Grit–S includes two dimensions: consistency of interest (e.g., "I often set a goal but later choose to pursue a different one") and perseverance of effort (e.g., "Setbacks don't discourage me"). Higher scores indicate higher levels of grit. In the present study, Cronbach's α was 0.79 for the overall scale.

3.2.2. Career Construction

Career construction was accessed with the Student Career Construction Inventory (SCCI) as a measure of adapting responses [33]. The 18-item scale consists of four dimensions: crystallizing (e.g., "Recognizing my interests and abilities"), exploring (e.g., "Investigating occupations that might suit me"), deciding (e.g., "Selecting an occupation that will satisfy me"), and preparing (e.g., "Finding opportunities to get the training and experience I need"). The SCCI was rated on a 5-point Likert scale ranging from "5 = I have already done it" to "1 = I have not yet thought much about it." Higher scores indicate that students engage in more career construction tasks than those with lower scores. In this study, Cronbach's α was 0.91 for the overall scale.

3.2.3. Hope

The Adult Trait Hope Scale (ATHS) [42] was used to assess the dispositional level of hope. The ATHS contains two dimensions: agency (e.g., "I energetically pursue my goals") and pathways (e.g., "I can think of many ways to get the things in life that are most important to me"). Each item was rated on a 4-point Likert scale (1 = definitely false, 2 = mostly false, 3 = mostly true, 4 = definitely true). Higher scores represent higher levels of hope. In our study, Cronbach's α was 0.80 for the overall scale.

3.2.4. Career Adaptability

The Chinese version of the Career Adapt-Abilities Scale (CAAS) [60] was used to measure adaptability resources. The CAAS refers to four dimensions: concern (e.g., "Thinking about what my future will be like"), control (e.g., "Taking responsibility for my actions"), curiosity (e.g., "Looking for opportunities to grow as a person"), and confidence (e.g., "Performing tasks efficiently"). All 24 items were scored on a 5-point Likert scale (1 = not strong to 5 = strongest), with higher total scores representing higher levels of career adaptability. In our study, Cronbach's α was 0.93 for the overall scale.

3.3. Data Analysis

All statistical analysis was conducted with IBM SPSS 26.00. Firstly, we calculated the mean, standard deviation, and Pearson's correlation coefficient for the study variables of interest. Then, serial mediation analyses were performed using PROCESS macro version 3.5 for SPSS [61] to test the mediating effect of hope and career adaptability between grit and career construction.

4. Results

4.1. Common-Method Variance Testing

Although we used different forms of scales in the questionnaire to avoid the impact of common-method variance, there may still have been a negative impact. We performed Harman's single-factor test [62–64] to determine whether a single factor accounted for more than 40% of the variance of the items in the factor analysis. The results showed that there were 14 factors with eigenvalues greater than 1. The first factor (with a maximum eigenvalue of 15.81) accounted for 25.50% of the explained variance; there were no factors with excessive explanatory power, indicating no serious common-method bias problem.

4.2. Descriptive Statistics and Correlation Analysis

According to the original literature of each measurement, reporting a total score of Grit-S/SCCI/ATHS/CAAS/ was justified [9,26,33,42]. Referring to the relevant literature, we only used the total scores of these scales, not the subscale scores [22,49,56]. Table 1 displays the descriptive statistics and correlation coefficient for study variables. The results revealed significant positive correlations among grit, hope, career adaptability, and career construction (r = 0.15 to 0.59, $p < 0.001$).

Table 1. Descriptive statistics and Pearson's correlations of the variables.

Variables	*M*	*SD*	1	2	3
1. Grit	2.99	0.66	–		
2. Hope	2.63	0.47	0.56 ***	–	
3. Career adaptability	3.82	0.60	0.48 ***	0.56 ***	–
4. Career construction	3.26	0.76	0.37 ***	0.49 ***	0.59 ***

Note: *** $p < 0.001$.

4.3. Serial Mediation Analysis

To test the serial mediation model with hope and career adaptability as mediators of the link between grit and career construction, we used PROCESS macro v3.5 (Model 6),

created by Hayes for SPSS [61]. The total effect model indicated that grit significantly and positively predicted career construction, β = 0.37, $p < 0.001$, and the model's adjusted $R^2 = 0.14$, F (1, 505) = 79.24, $p < 0.001$. This result supported H1.

The other regression results are shown in Table 2. Grit significantly predicted hope (β = 0.56, $p < 0.001$) and career adaptability (β = 0.23, $p < 0.001$), but did not predict career construction (β = 0.03, $p = 0.463$); hope significantly predicted career adaptability (β = 0.46, $p < 0.001$) and career construction (β = 0.18, $p < 0.001$); and career adaptability significantly predicted career construction (β = 0.47, $p < 0.001$).

Table 2. Regression coefficients, standard errors, and model summary information for the serial mediation model.

Predictors	Equation 1 (Hope)			Equation 2 (Career Adaptability)			Equation 3 (Career Construction)		
	β	*SE*	*t*	β	*SE*	*t*	β	*SE*	*t*
Grit	0.56	0.03	15.29 ***	0.23	0.04	5.50 ***	0.03	0.05	0.73
Hope				0.46	0.05	10.94 ***	0.18	0.08	3.92 ***
Career adaptability							0.47	0.06	10.57 ***
R^2		0.32			0.39			0.38	
F		233.91 ***			159.21 ***			104.31 ***	

Note: *** $p < 0.001$.

The serial mediation effects were tested using a bootstrapping technique (sampling repeated 5000 times) [65]. As shown in Table 3, as the 95% bootstrap credible interval for the estimated effect value did not contain zero, the total effect, the indirect effect, and three mediation effects were all statistically significant, except for the direct effect. This result indicated that hope and career adaptability mediate the relationship between grit and career construction. Thus, H2, H3, and H4 were supported.

Table 3. Mediating effect analysis (bootstrap estimation).

Pathway	Estimated Effect (Standardized)	Boot SE	95%CI	Relative Mediating Effect (%)
Total effect	0.368	0.048	0.332, 0.520	–
Direct effect	0.032	0.050	−0.062, 0.136	–
Total Indirect effect	0.336	0.033	0.273, 0.403	91.31
Grit→Hope→Career construction	0.104	0.034	0.037, 0.170	28.21
Grit→Career adaptability→Career construction	0.110	0.026	0.066, 0.165	29.76
Grit→Hope→Career adaptability→Career construction	0.123	0.024	0.081, 0.175	33.34

Note: Bootstrap sample size = 5000; 95% CI = 95% confidence intervals.

In addition, the total indirect effect comprised a "three-path" mediated effect. The single mediating effects of hope and career adaptability accounted for 28.21% and 29.76% of the total effects, respectively. The serial mediation effect of the two variables accounted for 33.34%. Figure 2 shows the path model and standardized coefficients.

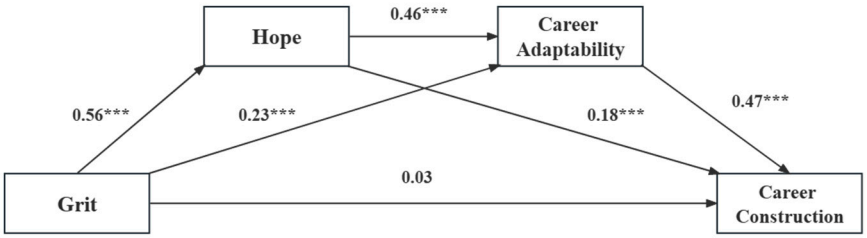

Figure 2. Standard path coefficients diagram of the serial mediation model. Note: *** $p < 0.001$.

The findings confirmed the positive effects of hope and career adaptability on promoting career-constructing behaviors, and these psychological assets contributed to elaborating predictive mechanisms between grit and career construction.

5. Discussion

Based on the CCMA, we used a serial mediation model to shed light on how grit, hope, and career adaptability predicted career construction among high school students. The results verified the mediating role of hope and career adaptability in the relationship between grit and career construction. Our findings made the following contributions.

First, we found that grit can predict career construction in the context of Chinese culture (H1), adding empirical evidence and the ecological validity to the existing research on the relationship between these two variables (grit and career construction). Based on the CCMA, career adaptation is a dynamic constructing process between the subjective self and the objective world [9,10]. Through self-regulation strategies, individuals need to conduct their self-concepts in career roles to form their life themes and career construction [8]. Grit is strongly related to self-regulation [24]. Thus, grit can be an indicator of adaptive readiness [36], significantly affecting all subsequent dimensions of the CCMA. Along these lines, high school students with perseverance, passion, and long-term goals are more inclined to engage in career construction tasks, such as self-cognition, environment exploration, and career preparation. This research indicated that we could promote the career construction of high school students by cultivating their grit. For example, students can be encouraged to strive, grow, and learn, and such an environment benefits the development of grit [66].

Second, and more importantly, our study found that the effect of grit on career construction drew on the mediating role of hope and career adaptability. We clarified the underlying mechanisms by which grit affects career construction, which previous research failed to do. In the serial mediation analysis, the direct effect of grit on career construction was not significant. Hope and career adaptability were separate mediators (H2 and H3), and these two variables were also serial mediators (H4). This result suggested that the development of grit needs to be supported by the improvement of hope and career adaptability to promote career construction.

Third, our study expanded the critical empirical evidence for the development of the CCMA. As indicated by this study, both grit and hope are components of adaptive readiness, but the effect of grit on career construction responses is mediated by hope. Hope offers the goal, agency, and pathway to address career challenges [41,43]. Although grit provides persistence and passion, this capability requires the pathway thinking and agency thinking of hope to be truly implemented in concrete career construction behaviors. Our research provided constructive insights into the roles of various components of adaptive readiness in the CCMA. Meanwhile, as predicted by the CCMA and previous research [19,20], the mediating role of career adaptability between adaptive readiness (grit and hope) and adapting responses (career construction) was charted. In addition, we confirmed that hope precedes career adaptability in the serial mediation model between grit and career construction. People with a higher level of hope have more career adaptability resources to deal with career tasks and challenges. This result is consistent with previous studies [46,57].

Although our study verified the serial mediating role of hope and career adaptability, there may still be other mediating variables between grit and career construction, such as resilience processes [57], proactive career orientations [67,68], career agency [69], and career self-efficacy [70]. More research is needed to clarify these in the future.

5.1. Practical Implications

The results of this study have some practical implications for career education. In Chinese high schools, there are limited time and resources to devote to career interventions. It is necessary to allocate valuable resources to variables most likely to impact career construction behaviors positively. Chinese culture and education have always advocated for the importance of perseverance, goals, and agency [27,28,71]. Schools in China have

been trying to create an environment that facilitates learning, mastery, and striving [66]. In other words, devoting resources to developing students' grit and hope has always been encouraged. However, current intervention approaches have rarely combined the promotion of grit, hope, and career adaptability.

Hope and career adaptability were indicated to be key mediators of the positive impact of grit on career construction in this study. Therefore, career educators and counselors should focus on developing students' sense of hope and career adaptability while fostering grit. High school students should be guided to consider their future career development and explore their selves and careers. Having a goal is a vital component of grit and hope, and it is related to academic performance [66]. Since high school educators have already devoted many resources to goal guidance, they do not need to devote additional resources to such career interventions. Instead, they need to help students choose an appropriate direction as a long-term goal and maintain confidence and hope despite various setbacks. Through the above approaches, it is possible to improve the career construction of high school students gradually.

5.2. Limitations and Future Directions

In addition to its contributions, there were some limitations to this study.

First, this study used a cross-sectional design to test the hypothesis model, so we could not uncover the true causality. Even though the mediation model proved the sequential steps of the CCMA, reverse causal relationships were still possible. Future researchers may consider undertaking a longitudinal design to examine the causality developed over time.

Second, the research sample was relatively small, and its randomness and representativeness were insufficient, since the sample was from just one city in one country. Given this limitation, the results of this study may not apply to a broader group of high school students. Thus, future studies should expand the sample to examine the generalization of current results.

Third, this study tested the first three components of the CCMA. In future research, a variable that indicates adaptation results, as the fourth step of the CCMA, should be used. Previous research indicated that career construction can enhance adaptation results, such as study engagement [21] and happiness [22]. However, some studies found no significant results [55] and even reported a negative effect of career construction on adaptation results [72]. Chinese high school students' biggest career challenge remains the Gaokao system, which almost entirely determines their future careers [73]. Thus, Gaokao scores represent a critical adaptation outcome variable when exploring the relationship between career construction and academic performance. This will provide constructive insights into career construction theory and help uncover the relationships between the four components of the CCMA.

Additionally, future research needs to take into account cultural differences. Career construction theory and career adaptability may contain different dimensions in China compared to elsewhere that reflect Chinese cultural values [74]. A recent review study showed that flexibility and creativity are essential career adaptability resources in Chinese culture [75], which presents an opportunity to design an appropriate career adaptability measurement according to the cultural context in China. Researchers should also consider parental influence (e.g., parents' education and occupation), an essential factor in adolescents' career construction in Chinese culture.

Author Contributions: Conceptualization, C.Z. and N.Z.; data curation, C.Z. and X.C.; formal analysis, C.Z. and X.C.; funding acquisition, X.C.; investigation, C.Z. and X.C.; methodology, C.Z. and X.C.; project administration, C.Z. and X.C.; resources, S.S. and N.Z.; supervision, N.Z.; writing—original draft, C.Z.; writing—review and editing, X.C. and S.S. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by the Advantages Discipline Group (Public Health) Project in Higher Education of Hubei Province (no. 2022PHXKQ2) and Faculty Development Grants from Hubei University of Medicine (no. 2019QDJRW03).

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki and approved by the Ethics Committee of Hubei University of Medicine (no. 2021-TH-095).

Informed Consent Statement: Informed consent was obtained from all participants involved in the study. Written informed consent was obtained from the participants to publish this paper.

Data Availability Statement: The data that support the findings of this study are available from the corresponding author. Restrictions apply to the availability of these data, which were used under license for this study. Data are available from the authors with the permission of Wuhan University.

Acknowledgments: The authors would like to thank Bao-yu Bai (working at Wuhan University) and Ke Li (working at Wuhan University) for their great support with data analysis and writing the revision.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Di Fabio, A. From Career Development to Career Management: A Positive Prevention Perspective. In *International Handbook of Career Guidance*; Athanasou, J.A., Perera, H.N., Eds.; Springer International Publishing: Cham, Switzerland, 2019; pp. 209–240, ISBN 978-3-030-25153-6.
2. Bennett, N.; Lemoine, G.J. What a Difference a Word Makes: Understanding Threats to Performance in a VUCA World. *Bus. Horiz.* **2014**, *57*, 311–317. [CrossRef]
3. Savickas, M.L.; Nota, L.; Rossier, J.; Dauwalder, J.P.; Duarte, M.E.; Guichard, J.; Soresi, S.; Van Esbroeck, R.; van Vianen, A.E.M. Life Designing: A Paradigm for Career Construction in the 21st Century. *J. Vocat. Behav.* **2009**, *75*, 239–250. [CrossRef]
4. Savickas, M.L. Constructing Careers: Actor, Agent, and Author. *J. Employ. Couns.* **2011**, *48*, 179–181. [CrossRef]
5. Sullivan, S.E.; Baruch, Y. Advances in Career Theory and Research: A Critical Review and Agenda for Future Exploration. *J. Manag.* **2009**, *35*, 1542–1571. [CrossRef]
6. Savickas, M.L. Career Adaptability: An Integrative Construct for Life-Span, Life-Space Theory. *Career Dev. Q.* **1997**, *45*, 247–259. [CrossRef]
7. Savickas, M.L. Career Construction: A Developmental Theory of Vocational Behavior. In *Career Choice and Development*; Duane, B., Ed.; Jossey-Bass: San Francisco, CA, USA, 2002; pp. 149–205, ISBN 0-7879-5741-0.
8. Savickas, M.L. The Theory and Practice of Career Construction. In *Career Development and Counseling: Putting Theory and Research to Work*; Brown, S.D., Lent, R.W., Eds.; John Wiley & Sons, Inc.: Hoboken, NJ, USA, 2005; pp. 42–70, ISBN 0-471-28880-2.
9. Savickas, M.L.; Porfeli, E.J. Career Adapt-Abilities Scale: Construction, Reliability, and Measurement Equivalence across 13 Countries. *J. Vocat. Behav.* **2012**, *80*, 661–673. [CrossRef]
10. Savickas, M.L. The Theory and Practice of Career Construction. In *Career Development and Counseling: Putting Theory and Research to Work*, 2nd ed.; Brown, S.D., Lent, R.W., Eds.; John Wiley & Sons, Inc.: Hoboken, NJ, USA, 2013; pp. 147–183, ISBN 978-1-118-23627-7.
11. Hartung, P.J.; Porfeli, E.J.; Vondracek, F.W. Child Vocational Development: A Review and Reconsideration. *J. Vocat. Behav.* **2005**, *66*, 385–419. [CrossRef]
12. Savickas, M.L. The Transition from School to Work: A Developmental Perspective. *Career Dev. Q.* **1999**, *47*, 326–336. [CrossRef]
13. Super, D.E. A Life-Span, Life-Space Approach to Career Development. In *Career Choice and Development: Applying Contemporary Theories to Practice*, 2nd ed.; Brown, D., Brooks, L., Eds.; The Jossey-Bass Management Series and The Jossey-Bass Social and Behavioral Science Series; Jossey-Bass: San Francisco, CA, USA, 1990; pp. 197–261, ISBN 1-55542-196-2.
14. Creed, P.A.; Patton, W.; Prideaux, L.A. Predicting Change over Time in Career Planning and Career Exploration for High School Students. *J. Adolesc.* **2007**, *30*, 377–392. [CrossRef] [PubMed]
15. Perry, J.C.; Liu, X.Y.; Pabian, Y. School Engagement as a Mediator of Academic Performance Among Urban Youth: The Role of Career Preparation, Parental Career Support, and Teacher Support. *Couns. Psychol.* **2010**, *38*, 269–295. [CrossRef]
16. Skorikov, V. Continuity in Adolescent Career Preparation and Its Effects on Adjustment. *J. Vocat. Behav.* **2007**, *70*, 8–24. [CrossRef]
17. Fan, W.; Cheung, F.M.; Leong, F.T.L.; Cheung, S.F. Contributions of Family Factors to Career Readiness: A Cross-Cultural Comparison. *Career Dev. Q.* **2014**, *62*, 194–209. [CrossRef]
18. Rudolph, C.W.; Lavigne, K.N.; Katz, I.M.; Zacher, H. Linking Dimensions of Career Adaptability to Adaptation Results: A Meta-Analysis. *J. Vocat. Behav.* **2017**, *102*, 151–173. [CrossRef]
19. Rudolph, C.W.; Lavigne, K.N.; Zacher, H. Career Adaptability: A Meta-Analysis of Relationships with Measures of Adaptivity, Adapting, Responses, and Adaptation Results. *J. Vocat. Behav.* **2017**, *98*, 17–34. [CrossRef]
20. Johnston, C.S. A Systematic Review of the Career Adaptability Literature and Future Outlook. *J. Career Assess.* **2018**, *26*, 3–30. [CrossRef]

21. Šverko, I.; Babarović, T. Applying Career Construction Model of Adaptation to Career Transition in Adolescence: A Two-Study Paper. *J. Vocat. Behav.* **2019**, *111*, 59–73. [CrossRef]
22. Öztemel, K.; Yıldız-Akyol, E. From Adaptive Readiness to Adaptation Results: Implementation of Student Career Construction Inventory and Testing the Career Construction Model of Adaptation. *J. Career Assess.* **2021**, *29*, 54–75. [CrossRef]
23. Jia, Y.; Hou, Z.J.; Shen, J. Adolescents' Future Time Perspective and Career Construction: Career Adaptability as Mediator and Hope as Moderator. *J. Career Dev.* **2022**, *49*, 202–217. [CrossRef]
24. Muenks, K.; Wigfield, A.; Yang, J.S.; O'Neal, C.R. How True Is Grit? Assessing Its Relations to High School and College Students' Personality Characteristics, Self-Regulation, Engagement, and Achievement. *J. Educ. Psychol.* **2017**, *109*, 599–620. [CrossRef]
25. Duckworth, A.L.; Peterson, C.; Matthews, M.D.; Kelly, D.R. Grit: Perseverance and Passion for Long-Term Goals. *J. Pers. Soc. Psychol.* **2007**, *92*, 1087–1101. [CrossRef]
26. Duckworth, A.L.; Quinn, P.D. Development and Validation of the Short Grit Scale (Grit–S). *J. Pers. Assess.* **2009**, *91*, 166–174. [CrossRef] [PubMed]
27. Li, J.G.; Zhao, Y.J.; Kong, F.; Du, S.L.; Yang, S.Y.; Wang, S. Psychometric Assessment of the Short Grit Scale Among Chinese Adolescents. *J. Psychoeduc. Assess.* **2018**, *36*, 291–296. [CrossRef]
28. Zhao, Y.K.; Niu, G.F.; Hou, H.C.; Zeng, G.; Xu, L.Y.; Peng, K.P.; Yu, F. From Growth Mindset to Grit in Chinese Schools: The Mediating Roles of Learning Motivations. *Front. Psychol.* **2018**, *9*, 7. [CrossRef] [PubMed]
29. Fan, W.; Leong, F.T.L. Introduction to the Special Issue: Career Development and Intervention in Chinese Contexts. *Career Dev. Q.* **2016**, *64*, 192–202. [CrossRef]
30. Chen, S.; Xue, Y.; Chen, H.R.; Ling, H.R.; Wu, J.J.; Gu, X.Y. Making a Commitment to Your Future: Investigating the Effect of Career Exploration and Career Decision-Making Self-Efficacy on the Relationship between Career Concern and Career Commitment. *Sustainability* **2021**, *13*, 12816. [CrossRef]
31. Wong, L.P.W.; Yuen, M.; Chen, G. Technology-Infused Career and Life Planning Education. *Asia Pac. Career Dev. J.* **2019**, *2*, 51–62.
32. Chen, H.R.; Liu, F.; Wen, Y.; Ling, L.; Chen, S.; Ling, H.R.; Gu, X.Y. Career Exploration of High School Students: Status Quo, Challenges, and Coping Model. *Front. Psychol.* **2021**, *12*, 8. [CrossRef]
33. Savickas, M.L.; Porfeli, E.J.; Hilton, T.L.; Savickas, S. The Student Career Construction Inventory. *J. Vocat. Behav.* **2018**, *106*, 138–152. [CrossRef]
34. Rocha, M.; GuimarÃEs, M.I. Adaptation and Psychometric Properties of the Student Career Construction Inventory for a Portuguese Sample: Formative and Reflective Constructs. *Psychol. Rep.* **2012**, *111*, 845–869. [CrossRef]
35. Duckworth, A.L.; Gross, J.J. Self-Control and Grit: Related but Separable Determinants of Success. *Curr. Dir. Psychol. Sci.* **2014**, *23*, 319–325. [CrossRef]
36. Gregor, M.A.; Weigold, I.K.; Wolfe, G.; Campbell-Halfaker, D.; Martin-Fernandez, J.; Del Pino, H.V.G. Positive Predictors of Career Adaptability Among Diverse Community College Students. *J. Career Assess.* **2021**, *29*, 115–128. [CrossRef]
37. Datu, J.A.D.; Yuen, M.T.; Chen, G.W. Development and Validation of the Triarchic Model of Grit Scale (TMGS): Evidence from Filipino Undergraduate Students. *Personal. Individ. Differ.* **2017**, *114*, 198–205. [CrossRef]
38. Ting, L.C.; Datu, J.A.D. Triarchic Model of Grit Dimensions as Predictors of Career Outcomes. *Career Dev. Q.* **2020**, *68*, 348–360. [CrossRef]
39. Lee, S.; Sohn, Y.W. Effects of Grit on Academic Achievement and Career-Related Attitudes of College Students in Korea. *Soc. Behav. Personal.* **2017**, *45*, 1629–1642. [CrossRef]
40. Jongun, K.; Hwa, K.S. Mediation Effects of Grit and Sense of School Belonging on the Relationship between Adult Attachment and Career Preparation Behavior of Specialized Vocational High School Students. *J. Learn.-Cent. Curric. Instr.* **2021**, *21*, 583–598. [CrossRef]
41. Snyder, C.R. Hope Theory: Rainbows in the Mind. *Psychol. Inq.* **2002**, *13*, 249–275. [CrossRef]
42. Snyder, C.R.; Harris, C.; Anderson, J.R.; Holleran, S.A.; Irving, L.M.; Sigmon, S.T.; Yoshinobu, L.; Gibb, J.; Langelle, C.; Harney, P. The Will and the Ways: Development and Validation of an Individual-Differences Measure of Hope. *J. Pers. Soc. Psychol.* **1991**, *60*, 570–585. [CrossRef] [PubMed]
43. Niles, S.G. Career Flow: A Hope-Centered Model of Career Development. *J. Employ. Couns.* **2011**, *48*, 173–175. [CrossRef]
44. Luthans, F.; Luthans, K.W.; Luthans, B.C. Positive Psychological Capital: Beyond Human and Social Capital. *Bus. Horiz.* **2004**, *47*, 45–50. [CrossRef]
45. Hirschi, A. Hope as a Resource for Self-Directed Career Management: Investigating Mediating Effects on Proactive Career Behaviors and Life and Job Satisfaction. *J. Happiness Stud.* **2014**, *15*, 1495–1512. [CrossRef]
46. Korkmaz, O. Will Hope and Career Adapt-Abilities Bring Students Closer to Their Career Goals? An Investigation through the Career Construction Model of Adaptation. *Curr. Psychol.* **2022**, 12. [CrossRef]
47. Ginevra, M.C.; Pallini, S.; Vecchio, G.M.; Nota, L.; Soresi, S. Future Orientation and Attitudes Mediate Career Adaptability and Decidedness. *J. Vocat. Behav.* **2016**, *95–96*, 102–110. [CrossRef]
48. Ochoco, M.S.A.; Ty, W.E.G. Examining the Career Construction Model of Adaptation Among Filipino Senior High School Students. *J. Career Dev.* **2022**, 16. [CrossRef]
49. Yang, L.; Wu, D.M. Grit and Meaning in Life of Chinese Nurses: The Chain Mediating Effect of Social Support and Hope. *Front. Psychol.* **2021**, *12*, 8. [CrossRef]

50. Hill, P.L.; Burrow, A.L.; Bronk, K.C. Persevering with Positivity and Purpose: An Examination of Purpose Commitment and Positive Affect as Predictors of Grit. *J. Happiness Stud.* **2016**, *17*, 257–269. [CrossRef]
51. Karacan-Ozdemir, N.; Ayaz, A. Adolescents' Future Expectations of Work and Education Within Adaptation Model of Career Construction Theory. *J. Career Dev.* **2021**. [CrossRef]
52. Tolentino, L.R.; Sibunruang, H.; Garcia, P.R.J.M. The Role of Self-Monitoring and Academic Effort in Students' Career Adaptability and Job Search Self-Efficacy. *J. Career Assess.* **2019**, *27*, 726–740. [CrossRef]
53. Hirschi, A.; Herrmann, A.; Keller, A.C. Career Adaptivity, Adaptability, and Adapting: A Conceptual and Empirical Investigation. *J. Vocat. Behav.* **2015**, *87*, 1–10. [CrossRef]
54. Nilforooshan, P. From Adaptivity to Adaptation: Examining the Career Construction Model of Adaptation. *Career Dev. Q.* **2020**, *68*, 98–111. [CrossRef]
55. Merino-Tejedor, E.; Hontangas, P.M.; Boada-Grau, J. Career Adaptability and Its Relation to Self-Regulation, Career Construction, and Academic Engagement among Spanish University Students. *J. Vocat. Behav.* **2016**, *93*, 92–102. [CrossRef]
56. Li, H.H.; Yu, X.; Mei, Y.F.; Liu, X.H.; Li, L.; Luo, N. The Effect of Grit on Career Adaptability of Chinese College Students Based on the Self-Regulatory Processes. *Front. Psychol.* **2021**, *12*, 11. [CrossRef]
57. Zeng, Q.; Li, J.; Huang, S.J.; Wang, J.Q.; Huang, F.F.; Kang, D.R.; Zhang, M.Q. How Does Career-Related Parental Support Enhance Career Adaptability: The Multiple Mediating Roles of Resilience and Hope. *Curr. Psychol.* **2022**, 13. [CrossRef]
58. Wilkins, K.G.; Santilli, S.; Ferrari, L.; Nota, L.; Tracey, T.J.G.; Soresi, S. The Relationship among Positive Emotional Dispositions, Career Adaptability, and Satisfaction in Italian High School Students. *J. Vocat. Behav.* **2014**, *85*, 329–338. [CrossRef]
59. Gu, X.Y.; Tang, M.; Chen, S.; Montgomery, M.L.T. Effects of a Career Course on Chinese High School Students' Career Decision-Making Readiness. *Career Dev. Q.* **2020**, *68*, 222–237. [CrossRef]
60. Hou, Z.J.; Leung, S.A.; Li, X.X.; Li, X.; Xu, H. Career Adapt-Abilities Scale-China Form: Construction and Initial Validation. *J. Vocat. Behav.* **2012**, *80*, 686–691. [CrossRef]
61. Hayes, A.F. *Introduction to Mediation, Moderation, and Conditional Process Analysis : A Regression-Based Approach*, 2nd ed.; The Guilford Press: New York, NY, USA, 2018; ISBN 978-1-4625-3466-1.
62. Harman, H.H. *Modern Factor Analysis, 3rd Rev Ed*; University of Chicago Press: Oxford, UK, 1976; ISBN 978-0226316529.
63. Podsakoff, P.M.; MacKenzie, S.B.; Lee, J.-Y.; Podsakoff, N.P. Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *J. Appl. Psychol.* **2003**, *88*, 879–903. [CrossRef] [PubMed]
64. Podsakoff, P.M.; Organ, D.W. Self-Reports in Organizational Research: Problems and Prospects. *J. Manag.* **1986**, *12*, 531–544. [CrossRef]
65. Preacher, K.J.; Hayes, A.F. Asymptotic and Resampling Strategies for Assessing and Comparing Indirect Effects in Multiple Mediator Models. *Behav. Res. Methods* **2008**, *40*, 879–891. [CrossRef] [PubMed]
66. Park, D.; Yu, A.; Baelen, R.N.; Tsukayama, E.; Duckworth, A.L. Fostering Grit: Perceived School Goal-Structure Predicts Growth in Grit and Grades. *Contemp. Educ. Psychol.* **2018**, *55*, 120–128. [CrossRef] [PubMed]
67. Coetzee, M.; Schreuder, D. Proactive Career Self-Management: Exploring Links among Psychosocial Career Attributes and Adaptability Resources. *South Afr. J. Psychol.* **2018**, *48*, 206–218. [CrossRef]
68. Lent, R.W.; Morris, T.R.; Wang, R.J.; Moturu, B.P.; Cygrymus, E.R.; Yeung, J.G. Test of a Social Cognitive Model of Proactive Career Behavior. *J. Career Assess.* **2022**, 20. [CrossRef]
69. Hayden, S.C.W.; Osborn, D.S.; Peace, C.; Lange, R. Enhancing Agency in Career Development via Cognitive Information Processing Theory. *Br. J. Guid. Couns.* **2021**, *49*, 304–315. [CrossRef]
70. Datu, J.A.D.; Yuen, M.; Fung, E.; Zhang, J.H.; Chan, S.; Wu, F. The Satisfied Lives of Gifted and Gritty Adolescents: Linking Grit to Career Self-Efficacy and Life Satisfaction. *J. Early Adolesc.* **2022**, *42*, 1052–1072. [CrossRef]
71. Shek, D.T.L.; Chan, L.K. Hong Kong Chinese Parents' Perceptions of the Ideal Child. *J. Psychol.* **1999**, *133*, 291–302. [CrossRef]
72. Yu, H.B.; Dong, Z.H.; Guan, X.Y.; Yan, C.L.; Su, X.; Cheng, L. A Multiple Mediational Meta-Analysis of the Influence of Proactive Personality on Subjective Career Success at the Career Exploration Stage. *J. Career Assess.* **2022**, 26. [CrossRef]
73. Fang, F.; McCall, B.; Zhong, B.L. How Does Family Background Influence Students' Choice of Subjects for the National College Entrance Examination? *High. Educ. Res. Dev.* **2022**, 15. [CrossRef]
74. Mandela, N.R. Deconstruction, Reconstruction, Co-Construction : Career Construction Theory in a Developing World Context. *Indian J. Career Livelihood Plan.* **2014**, *2*, 3–14.
75. Wong, L.P.W. Issues Concerning the Interpretation and Assessment of Career Adaptability: Perspective from Hong Kong, China. *Youth* **2022**, *2*, 181–194. [CrossRef]