


Review

Issues Concerning the Interpretation and Assessment of Career Adaptability: Perspective from Hong Kong, China

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Abstract: The concept of career adaptability has been widely applied across cultural and educational settings in the hope of finding working solutions to facilitate school-to-work transition. In Hong Kong, China, there are signs showing that career adaptability scores are increasingly being used as the dominant benchmark to measure the effectiveness of career interventions designed for student populations. However, this concept is developed primarily based on western values. For it to fulfill its theoretical promises, the concept needs to be reinterpreted in the local context. This means that issues concerning the measurement and interpretation of career adaptability need to be clarified due to cultural differences. This paper attempts to address this issue by reviewing published studies on adaptability across other disciplines of psychology. Results showed that most published studies in Hong Kong on career adaptability did not use data and methodological triangulation research methodologies. Overall, this review shows that a reductionist approach has been applied to the study of career adaptability in Hong Kong. The current understanding of career adaptability remains largely at the psychological level only. Cognitive and behavioral changes are seldom studied or reported despite their importance. Implications on how future research could be enhanced are discussed.

Keywords: career construction; career adaptability; Hong Kong



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1. Introduction

In Hong Kong, China, career adaptability has been regarded as a promising psychological concept in facilitating the career planning and preparation of secondary students in Hong Kong [1–3]. Undoubtedly, the empirical investigation of how career adaptability is linked to positive adolescent career development outcomes is important to enhancing our theoretical understanding of the concept. However, for lay consumers of research studies (e.g., policy makers; schoolteachers) who are mainly interested in *how* to initiate students' observable and measurable behavioral changes through cultivating career adaptability, there are potential problems if they do not understand properly how this concept is measured and reported. This is because very frequently, there is a lack of clarity and consistency in how the term “adaptability” is defined [4]. The psychological literature has tended to conflate adaptability with other closely related constructs [5]. Moreover, adaptability in its theoretical grounding implies the use of cognitive, behavioral, and affective resources to manage transition [5]. The contribution of these factors, however, was not clearly delineated in the career adaptability concept, and its related theory, the career construction theory (CCT) [4,6]. From a theoretical perspective, the lack of conceptual clarity concerning the career adaptability concept is based on the fact that while adaptability related to workplace and career transitions could be a new concept within the counseling psychology literature, the same concept, however, is not new at all and has already been systematically examined in the disciplines of organizational psychology and applied psychology [7]. The lack of conceptual clarity may have helped to explain why despite the overwhelmingly positive gains in career adaptability reported by certain local researchers in Hong Kong, results from

other largescale Hong Kong and international surveys revealed that secondary students in Hong Kong are still struggling to develop their career [8–11].

The objective of this paper is to clarify potential conceptual ambiguities concerning the study of career adaptability among secondary students in Hong Kong. To this end, this paper begins by first reviewing the conceptual definition of the term “adaptability” by drawing on published research in the study of adaptability from other disciplines of psychology. Then, recently published studies concerning the development of career adaptability of student populations in Hong Kong secondary schools are reviewed to examine how the career adaptability concept has been operationalized locally. These issues must be examined because a lack of clarity and consistency in defining adaptability will impede the users of the research data to make meaningful interpretations [1,8,10].

2. Theoretical Background

Throughout the paper, I use the term “adaptability” to refer to the concept as a distinct psychological construct that is not bounded to domain-specific influences. In this sense, career adaptability is regarded as a context-specific realization of the general adaptability concept. Such a differentiation is important to our analysis as it can help to illuminate the subtle differences in relation to how adaptability is defined across psychological disciplines and life domains.

At the outset, it is first important to define what “adaptability” as a discrete psychological construct is. According to the APA Dictionary of Psychology [12], it has the following definition:

1. “The capacity to make appropriate responses to changed or changing situations.”
2. “The ability to modify or adjust one’s behavior in meeting different circumstances or different people.”

The study of adaptability has generated popular research interest across disciplines. Several all-purpose conceptual frameworks have been proposed to examine adaptability applied in different life domains. The career adaptability concept proposed in the career construction theory is a good example of such a framework. Martin [5] has cautioned that these all-purpose frameworks may contain serious validity and reliability issues. Citing a newly proposed adaptability model as an example, he examined how adaptability was defined in the model by referring to the APA dictionary. He showed that the model conflated the adaptability concept with resilience, which is a related but distinct construct. Referring to the APA definition, Martin [5], further clarified that the following conceptual attributes can be used to define adaptability as an independent construct:

1. “Cognitive, behavioral, and emotional regulation.” [6].
2. The research context is a situation where individuals react to “change, variability, novelty, uncertainty, and transition.” [6].

Martin’s [5] analysis has offered several critical insights concerning the meaningful interpretation of adaptability research. First, due to the lack of understanding of the definitions of concepts related to adaptability, very frequently, researchers confused adaptability with other related constructs, or in the extreme, they are not measuring adaptability at all. A good example is the conflation of resilience, which is defined as “difficult or challenging life experiences” [12] with adaptability [6]. Second, the operational definition of adaptability adopted in existing theoretical frameworks may not be consistent with the standard APA definition. This means that it is possible for empirical research that has claimed to have examined adaptability to derive results that are not very meaningful to the understanding of adaptability as they diverge from the standard definition [5]. Third, psychological change alone is not sufficient to prove the existence of adaptability. Cognitive and behavioral factors must be considered as well. Last, adaptability is to be measured in situations where individuals experience transition, change, and uncertainty.

3. Issues Concerning the Concept of Career Adaptability

Savickas [2] proposed the career construction theory with an aim to converge different career theories to explain and predict modern vocational behaviors across contexts and cultures. Its central premise is that individuals are assumed to take full control and make autonomous decisions in constructing their career development trajectories. In this sense, the CCT follows a constructivist approach to career development. Career adaptability is the theoretical construct that governs the process of career construction. It is measured by the career adapt-abilities scale (CAAS) [13].

Career adaptability consists of four resources for managing transitions. They are concern, control, curiosity, and confidence. Individuals possessing high levels of career adaptability are oriented toward preparing themselves for future changes (concern), self-regulated (control), active in seeking career information and engaging in career exploration (curiosity), and believe in their ability in achieving their career goals (confidence). Recently, a fifth dimension “cooperation”, which refers to the ability to work well with others has been included in the conceptual framework [14].

Recent developments within the psychological literature have seen the common use of a reductionist approach toward psychological assessment, and the direct application of the theory with little cultural adaptation [15–17]. Within the Chinese context, the Positive Psychology movement is a good example [16]. Another example would be despite its widespread reported questionable cultural validity and reliability issues in Chinese settings [18–20], Holland’s hexagonal model of vocational personality is still being widely used within the secondary school sector in Hong Kong to assess vocational personality fit [3,21]. Key information concerning the statistical model fit of Holland’s model (e.g., root mean square error of approximation) was never reported when it is used in Hong Kong [3,21]. It is also unclear whether Holland’s model has been updated to reflect current changes in the Hong Kong labor market [1,9,10].

Within the field of counseling psychology, the popular support of the career construction theory is another good example of such a trend. Several researchers have cautioned that the CCT, and its related construct “career adaptability” should be carefully examined as the clarity of concepts has yet to be fully established [4–6]. Xu [22] reported issues concerning the incremental validity of career adaptability. In a sample of 284 employees and 279 university students in the United States, while the CAAS total score additively predicted career decision self-efficacy, the CAAS total score has failed to predict other career-related constructs. There are also validity and reliability issues when CAAS is applied in non-western settings such as South Africa and Hong Kong, China. Watson [23] attempted to apply the career construction theory to explain career issues in South Africa. He failed because of major cultural differences as career adaptability is a concept that is developed based on western values [14]. Likewise, Su and her colleagues [24] attempted to validate the CAAS in Hong Kong. They failed to replicate the factor structure of the CAAS as hypothesized by the career construction theory.

The career adaptability concept could be better understood if we examine its component structure by referring to how adaptability as a discrete construct is studied in other psychological disciplines [5]. The first step is to clarify potentially conflating parameters that are critical to the understanding of adaptability by referring to the APA dictionary. To this end, there are potential theoretical and linguistic issues concerning the interpretation of the four dimensions of career adaptability. First, compared to the formal APA definition, the term “adaptability” used in the career construction theory has its own theoretical and pragmatic meanings [4]. Second, career adaptability is being described as a collection of abilities, but it is unclear whether these abilities are cognitive, emotional, or behavioral in nature, and whether they are in fact teachable/learnable or not [4,25]. Third, there are other personality and behavioral traits that are found to be related to career-related adaptability but have not been included as dimensions of career adaptability as defined by the career construction theory [26,27]. Last, the distinction between individual and team

level adaptability is unclear given the fact that individuals function differently when they work in teams [28].

4. Issues Concerning Researching Career Adaptability

Based on Martin's suggestions [5], research designs can be better formulated to avoid conceptual confluents. Overall, the problems concerned with current career adaptability research are: (1) Lack of a clear understanding of variables related but distinct to adaptability, (2) a lack of cognitive, behavioral, and emotional coping change measurements deployed simultaneously with the CAAS at each measurement points, and (3) a lack of clarity of the context of the study. As an example to show how conceptual confluents are found in published empirical studies, Harry and Coetzee [29] studied the relationship between career adaptability and burnout in a highly stressful call center environment in South Africa. The research context involved no scenarios related to career transition. The researchers hypothesized career adaptability as a "resiliency resource". This is a perfect example of how the resilient construct is conflated with adaptability [5]. More recently, Maree and his colleagues [30] assessed the effectiveness of a career adaptability intervention with a group of 116 disadvantaged prospective university students who were in transition. In this study, the students were clearly in distress, but only career adaptability was measured. Also, changes in cognitive and behavioral outcomes of the research participants were not reported. Based on the research context, resilience should have been the core psychological construct to be examined as it is more concerned with distress coping [5]. However, there was also no detailed disclosure of the research context. It is unclear whether the research participants were in distress (resilience), transition (adaptability), or both (resilience + adaptability) [5].

5. Hong Kong as the Research Context

Hong Kong is a unique city in China due to its colonial history. As a former British colony, Hong Kong is a place where Western and Eastern philosophies converge. Despite its former colonial background, parenting and schooling practices in Hong Kong largely subscribe to traditional Chinese values. That is students, should be obedient, hard-working, and prioritize collective wellbeing over personal merits [31]. These indigenous beliefs were a product of the influence of traditional Chinese philosophical thoughts exemplified by Confucianism and Taoism [15,16]. In particular, Taoism has its own unique interpretation of adaptability. That is, as a part of nature, humans should seek to live harmoniously with the ever-changing environment and should learn to understand that change is inevitable [15,31]. To do so, they should act in a creative and flexible way to find balance with the ever-evolving world [32].

In Hong Kong, it is well-established that the pressure for secondary students to succeed in public matriculation exams is great. Students are taught the importance of adhering to established successful examination strategies [33]. Creativity and critical thinking are not prioritized in the classroom as examination preparation is deemed more important [34]. Under this examination-driven learning culture, secondary students in Hong Kong have limited opportunities to develop novel ideas such as career construction [35]. To exacerbate the problem, due to their limited knowledge of the world of work, secondary teachers in Hong Kong have found it difficult to teach career construction skills to their students [33–35].

At the societal level, concerted efforts have been made to enhance the quality of career guidance and counseling services provided in secondary schools in Hong Kong. Since 2014, the Hong Kong government has been generously providing curriculum and financial support to secondary schools in Hong Kong by initiating the "Career and Life Planning Education" curriculum reform [11]. The business sector and NGOs in Hong Kong also worked collaboratively to develop career assessment tools and interventions to help secondary students in Hong Kong to develop career adaptability [21,24]. At the university level, training courses with specific reference to the development of career adaptability are now being provided to equip secondary school teachers with the necessary knowledge and skills in career guidance and counseling [3,21].

At the school level, however, there is little evidence showing that reforms in career guidance and counseling have been executed as intended. For example, a large-scale study on more than 700 young people aged between 12–24 from 103 secondary schools in Hong Kong found that nearly 30% of the participants felt that their schools did not help much in facilitating their career preparation [36]. Another recent international research study showed that the participation of students in school-based career guidance in Hong Kong was the second-lowest among 31 OECD jurisdictions [8]. These realities all point to the fact that students are experiencing difficulties in gaining access to quality career guidance in school, which will certainly hamper their adaptability development.

The slow development of career guidance and counseling in Hong Kong secondary schools can be attributed to several reasons. The first reason being the heavily entrenched social belief in Hong Kong that obtaining high scores in matriculation exams is the only way that can guarantee future career success [34]. Because of this belief, many schools do not see the provision of quality career guidance and counseling services as important [10,11,31]. Second, career guidance and counseling initiatives in Hong Kong schools are mostly conducted by personnel who do not possess working experience outside of the education sector [31]. This means that they would find it difficult to help students respond to changes in the world of work [1,8,11,34]. Third, there is an over-reliance on the use of psychological assessments. The personal qualitative needs of students are seldom catered for [34]. Last, unlike countries such as Australia and Britain, there are currently no statutory quality monitoring mechanisms governing the appointment and promotion of schoolteachers and other personnel who are carrying out career guidance and counseling duties in secondary schools in Hong Kong [37]. In some situations, the person in charge of career guidance and counseling in a secondary school could be appointed simply based on seniority or even randomly [1,11].

Currently, students from Hong Kong, China are experiencing increasing difficulties transitioning from school to work due to the mainstreaming of higher education [9,38], declining English standard and international competitiveness [39,40], and a lack of access to quality career guidance [34]. In recent years, competition for a local university place fell to as low as 1.4 students for one university place [41]. Due to this mainstreaming of higher education, Hong Kong students are experiencing a range of social and employment-related problems [38]. One legislator in Hong Kong cautioned that coupled with the falling English standard, recent graduates will struggle to stay competitive in high-end job functions [39]. The recent COVID-19 pandemic has only made securing employment more difficult for recent university graduates [9]. A few local researchers suggested that helping students to develop *career adaptability* could be a solution to the problem [21,42]. However, two emerging social phenomena can stifle the development of adaptability. First is the new phenomenon of “lying flat” (Chinese: 躺平), which refers to a laid-back, apathetic, and indifferent attitude toward life and work [43]. Second is the emergence of “monster parenting”, a parenting style that centers on the belief that the child is always right [44]. This belief has resulted in many teachers in schools in Hong Kong frequently being complained about by parents for a variety of unreasonable reasons. This also means that teachers in Hong Kong are experiencing great difficulties in helping young people to develop adaptability because of the parents’ overprotective behaviors [9,10,45,46].

6. Career Adaptability Research in Hong Kong

Career adaptability is hypothesized as an important resource to facilitate a student’s transition from one important life stage to another [2]. For us to better understand the development of career adaptability research in Hong Kong, it is helpful to first understand the historical development of career guidance and counseling practices in Hong Kong secondary schools. As summarized by Wong and Yuen’s review of more than 60 years of development [31], career guidance and counseling practices in Hong Kong secondary schools had long been underdeveloped due to a lack of recognition and awareness of their importance. There has been little evidence showing that career guidance and counseling

practices in schools are systematically carried out and evaluated in a transparent manner. The year 2014 marked a monumental turning point for the development of career guidance and counseling practices in Hong Kong secondary schools. It was in this year that the introduction of a new curriculum initiative entitled “Career and Life Planning Education” (CLPE) was launched. This new initiative aimed at initiating a paradigm shift in career guidance and counseling practices in which modern approaches to career counseling would be adapted and made accessible for schoolteachers in Hong Kong to facilitate their students’ career development. To this end, several prominent career theories and concepts were adapted from the West. The concept of career adaptability was one of them.

In recent years, Hong Kong has seen an increasing number of research projects aiming to develop career interventions that can nurture the development of career adaptability among local secondary students. One common feature is that these studies all used self-reported career adaptability scores as measured by the CAAS as the dominant outcome measurement of the effectiveness of career interventions. Data and methodological triangulation were not evident. Findings from these studies will certainly be valuable to enhance our theoretical knowledge of career adaptability. However, we must be cautious when we use changes in career adaptability scores as the sole indicator in assessing the effectiveness of career interventions. This is because based on Martin’s [5] analysis, the way how these studies measured and reported career adaptability can be potentially problematic. In many cases, the associated cognitive, behavioral, and emotional change outcomes were not studied nor reported. This means that it is uncertain whether the interventions were able to elicit behavioral and attitudinal change, which is something that most educators and career professionals are concerned about.

To illustrate these problems within the Hong Kong context, there were early signs showing that the career adaptability construct is not applicable to explain adolescent career behavior in Hong Kong. For example, Su and her colleagues [24] attempted to validate the CAAS with a group of adolescents who were not in education, employment, or training (NEETs) in Hong Kong. They failed to replicate the original factor structure. They instead used a qualitative approach to report details of their career adaptability intervention [42]. Data triangulation was not evident. The research context also showed that the research participants were in distress due to their NEETs background, this means that it would be more conceptually correct to examine resilience rather than career adaptability. If the research participants concerned were undergoing transitions, then adaptability could be examined in conjunction with resilience [5]. Su and her colleagues’ study [24] thus illustrated a common type of conceptual conflation concerning the study of adaptability.

Leung [3,21] for example developed a self-access computer system for Hong Kong secondary students to engage in career exploration. It used self-reported scores of career adaptability as measured by the CAAS to indicate whether career adaptability has increased or not over time. It is important to note that, Leung used the career adapt-abilities scale validated with university and college student populations in China but not secondary students in Hong Kong for measurement [47]. This may not best reflect the career development needs of secondary students in Hong Kong as research has shown they have their unique situational and developmental needs, which are different from university students in China [34,37]. In addition, when validating his instruments, Leung [21] did not report the fit indices of the CAAS and other instruments used in his study. It is unclear whether these instruments are valid and reliable to be used to explain the career development behaviors of secondary students in Hong Kong [5,37].

The above review provides further support to Martin’s [5] suggestion that the operational definition of adaptability needs to be unified and consistent with established APA standards for research to yield meaningful results. Attention must be paid to the interpretation of career adaptability in the Hong Kong context. This is because although it is designed to be a unifying concept [2], its operational definition may not be consistent with the official APA definition of what adaptability means [4,5].

7. Methods and Purpose of This Review

This review sets out to synthesize processes and concepts related to research in adaptability to provide an overview of how this construct is studied. A merit of this approach is that it aims at examining the extant literature and highlights the current state of knowledge relevant to the concept under review [48]. This review does not claim to be exhaustive, rather it aims at contributing to the theoretical convergence movement initiated by Savickas [2] by providing insights on how the theoretical examination of the career adaptability concept could be enhanced.

8. Literature Search and Inclusion Criteria

Keyword searches were performed on library databases (e.g., ProQuest) and online academic search engines (e.g., Google Scholar). First, a combination of keywords was used to locate the scholarly works (e.g., career adaptability, adaptability, adaptability career, career adapt, adapt, adaptative, adaptability student). Searches were conducted in major psychology journals across the following disciplines: (1) applied psychology, (2) cognitive psychology, (3) communication psychology, (4) developmental psychology, (5) educational psychology, and (6) organizational psychology. These journal titles are for example American Psychologist, British Journal of Guidance & Counseling, Developmental Disorders, Educational Psychologist, Frontiers in Psychology, International Journal for Educational and Vocational Guidance, Journal of Applied Psychology, Journal of Applied Sports Psychology, Journal of Personality and Social Psychology, Personnel Psychology, Psychological Science, Journal of Vocational Behavior, Quarterly Journal of Speech, The Journal of Abnormal and Social Psychology, The Journal of Psychology.

In this review, articles were included if the following criteria were met: (1) theoretical and methodological papers containing any of the keyword searches, (2) measured career adaptability and its effects on secondary school students, (3) measured adaptability and its effects on secondary school students, (4) measured adaptability against any of the keyword searches. Only published peer-reviewed materials were included. Nonpeer-reviewed materials were all excluded. Figure 1 shows a flow diagram of the literature search and selection of papers through the review.

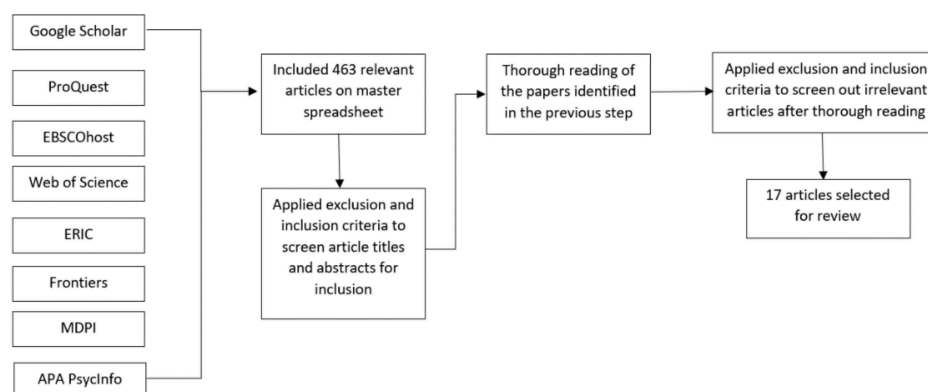


Figure 1. Overall flow of literature search and inclusion.

9. Data Synthesis and Analysis

The identified adaptability research studies were grouped based on the psychological discipline to which they correspond, which is indicated by the journals they were published in. They were then classified following the framework proposed by Martin [5] concerning the study of adaptability. That is, adaptability should be analyzed based on cognitive, behavioral, and affective domains in responding to change [6].

10. Results

10.1. Cognitive Aspects of Adaptability

Research in the areas of developmental and biological psychology suggests that the successful development of adaptability can be influenced by factors such as heredity. Heredity has been found to be a crucial factor influencing the development of communicative adaptability, which is referred to as the ability of individuals to use cognitive and emotional resources to change their communication behaviors based on their immediate surroundings [49]. In their study with 390 adult twins, Beatty and her colleagues [50] found that communicative adaptability was largely heritable, that is two out of three dimensions of communicative adaptability as measured by the Communicative Adaptability Scale [51] were found to be heritable social composure (88%), wit (90%), and social confirmation (37%). In keeping with these findings, similar previous research studies also reported that the ability to vary one's cognitive communicative style is largely heritable [52,53].

Empirical research in the field of educational psychology revealed similar findings. Krapohl and her colleagues [54] compared the achievement results of 13,306 twins in the General Certificate of Secondary Education (GCSE) examination together with their questionnaire results on nine noncognitive and behavioral domains. It was found that achievement results were largely influenced by heredity and intelligence. Altogether, cognitive and noncognitive variables accounted for 75% of the heritability of academic achievement. In particular, scores in English, Mathematics, and Science were found to be more heritable (62%). These results suggested that successful learning acquisition is influenced by genetics and not purely by intelligence.

Concerning the possible effects of a constructivist orientation of learning on students' achievement outcomes, Hattie [55] in his seminal synthesis of over 800 meta-analyses related to student achievement outcomes found that how adolescents are taught in schools was also instrumental to successful learning. Constructivist approaches to learning ($d = 0.17$) were found to be significantly less effective in enhancing student achievement compared to teachers' direct teaching ($d = 0.60$). These results concurred with a wealth of evidence reported in similar important empirical studies that had found that the constructivist approach to learning was largely detrimental to adolescents' academic achievement [56].

Several scholars in the field of educational psychology and organizational psychology argued that adaptability refers to the ability to be flexible to change. Bertollo and her colleagues [57] for example showed that helping autistic students to develop adaptability is to develop cognitive flexibility, which is "a central executive function skill and involves the ability to efficiently switch between multiple mental sets, tasks, or operations in response to changing situational demands". The application of this cognitive flexibility concept has also been applied in several adaptability frameworks within the field of organizational psychology. For example, Ployhart and Bliese [58] developed the Individual Adaptability Framework to explain workplace behavior. Flexibility is regarded as an interpersonal construct that is related to the ability to adapt to different situations when working with different people. Similarly, in another workplace-related adaptability framework, the Taxonomy of Adaptive Performance [59] suggested that being flexible and open-minded when dealing with others is an important interpersonal adaptability resource for effective teamwork to take place.

Other than flexibility, creativity has also been suggested to be an important cognitive adaptability resource. Pulakos and her colleagues [59] proposed that an important process for successful transition was the ability of individuals to develop original solutions to solve novel problems in unfamiliar environments. In keeping with this suggestion, Ployhart and Bliese [58] suggested that creativity and the ability to learn new things quickly are important cognitive abilities that are strongly related to overall work-related adaptability. Creativity and flexibility as work-related adaptability resources have both found support within the organizational psychology literature. For example, the Hogan Personality Inventory (HPI), the Motives, Values, Preferences Inventory (MVPI) [27], and the Dutch

Adaptability Dimensions and Performance Test [60] recognized these two constructs as important adaptability resources in occupational settings.

10.2. Behavioral Aspects of Adaptability

Research from counseling psychology, social psychology, and organizational psychology was able to show that heredity and environmental variables are influential factors in guiding the development of adaptability. First, Rushton and his colleagues [61] investigated 573 pairs of adult twins of both genders. It was found that altruistic and aggressive traits such as empathy, aggressiveness, and assertiveness have a broad heritability ranging from 56% to 64%. These results helped to show that the occurrence of certain behavioral traits is largely genetically influenced. Second, in terms of environmental factors, Mei and her colleagues' empirical study in China [62] showed that career adaptability was found to be negatively correlated to levels of participation in career training workshops and deliberate practice of the career-related skills taught. This negative correlation was influenced by environmental factors such as the course difficulty and the course instructors'/supervisors' negative responses. This observation also provides further evidence on the role cognitive variables played (e.g., perceived difficulty of the training content) in determining the successful development of career adaptability. Similar to research evidence shown in the educational psychology literature, their study [62] illustrated that deliberate practice of cognitive skills is an essential behavioral adaptability resource [55].

Several scholars across different psychological disciplines suggested the importance of using behavioral/performance variables to provide evidence of observable behavioral change concerning the development of adaptability. Within the organizational psychology literature, The Multidisciplinary Model of Reemployment Success [26] suggested that behavioral indicators can be used to measure the outcomes of work-related transitions. These outcome variables are for example current employment status, employment speed, duration of unemployment, job expectation, intention to quit, and intention to look for a new job. These outcome indicators can be used to provide supporting information to evident work-related adaptability [26]. Within the educational psychology literature, similar behavioral indicators could be used to assess observable behavioral changes. One example proposed by Collie and her colleagues [63] would be to use class attendance/participation to assess behavioral changes in class engagement within the school context.

10.3. Affective Aspects of Adaptability

Research across various psychological disciplines all suggested that emotional coping is an important adaptability resource that helps individuals to cope with psychological setbacks, distress, and uncertainty when they are in transition [63]. Martin and his colleagues [6] showed that within the educational context, adaptability is linked negatively to distress, poor mental health outcomes, and fear of uncertain situations.

Within the work context, research in organizational psychology showed that the ability to cope with stress and control one's emotions in teamwork settings is an essential adaptability trait [64]. Ogbonnaya [28] showed that in a sample of 4311 workers in 664 workplaces, performance gains resulting from working in teams came at the cost of higher levels of job-related anxiety. This observation concurs with the theoretical features of other adaptability frameworks in the field of organizational psychology. For example, the three adaptability frameworks that were designed to explain organizational adaptive behaviors agreed on the essential role flexibility plays in successful adaptation during transition [27,58,59].

Other than the ability to learn new skills and knowledge quickly [26], there are affective aspects of flexibility as an important adaptability resource. First, when working in teams, social/interpersonal adaptability, which is the ability to control one's emotions and be agreeable and open to criticism is critical to successful workplace adaptation [65]. Another important affective aspect of adaptability is the concept of cultural adaptability [27]. This concept refers to the ability of individuals to be able to sense the work practices of the

company, and subsequently modify their behaviors to fit themselves into the workplace culture accordingly [7,58,59]. Within Chinese settings, due to the influence of Confucianism and Taoism, cultural adaptability refers to the ability to adhere to the principles of obedience, prioritizing collective good over individual gains, loyalty, and being flexible and creative at the same time [31,32,66].

11. Discussion

This review has found a body of literature across several disciplines of psychology concerning the study of adaptability. Overall, these studies highlighted the important role cognitive, cultural, behavioral, and affective variables play in the formation of adaptability. The identification of these important factors can be used to aid our understanding of how the career adaptability concept could be better examined and interpreted.

At the theoretical level, first, it is important to clarify that although not specifically mentioned and addressed, the career adaptability concept draws heavily on the use of an individual's cognitive resources. This can be inferred by the wordings of the career adaptabilities scale [13]. Items such as "learning new skills" and "making decisions by myself" are clearly cognitive attributes that are related to the development of career adaptability. Results from this review showed that cognitive variables play a highly influential role in governing learning success. Research in educational psychology and communication psychology has shown that heredity and genetic factors are highly influential in determining successful learning outcomes and the deployment of motor skills and knowledge. To this end, this means that genetic factors and other cognitive factors such as intelligence govern to what extent career adaptability could be developed. In short, there is a limit to how career adaptability could be developed. This is an important point the career construction theory has yet to clarify clearly. Second, results from the review showed that compared to other published frameworks of adaptability, the career adaptability concept lacks a psychological coping mechanism. Research has shown that the ability to console oneself and to seek support from others is an important adaptability resource within the educational and occupational context [4,27,28,34,37]. Third, this review has also shown that *flexibility* and *creativity* are important adaptability resources within occupational settings and Chinese cultural contexts. However, these factors are not included as domains of career adaptability. This may help to suggest why as illustrated in Su and Wong's study [24], the factor structure of the career adaptabilities scale did not hold within the Chinese context. This may also help to shed light on the reasons why despite the fact that career adaptability interventions are increasingly becoming available to adolescents in Hong Kong [3,21,24,42], multiple survey reports have shown that secondary students in Hong Kong are still struggling in career planning [8,36].

At the practice level, first, this review shows that caution must be exercised when interpreting the results of successful career adaptability interventions. This is because as this review has shown, adaptability is a multi-dimensional concept that involves the interplay between cognitive, behavioral, and affective variables [5]. Mere reporting on self-reported career adaptability scores is insufficient to show the successful development of adaptability. Corresponding changes in cognitive, behavioral, and affective domains need to be shown as supporting evidence [5,25]. Second, attention must be paid to the data collection and analytical plan of career adaptability studies. This is because conceptually, as defined by the APA dictionary, adaptability has its own conceptual definition. Because the career adaptability concept is primarily developed based on conceptually similar constructs [2,22], conceptual conflation can easily take place and hence, research on career adaptability may not enhance our understanding of adaptability [5]. Third, due to cultural differences, the career construction theory and the career adaptability concept need to be deconstructed and then reconstructed according to Hong Kong's local cultural values [16,23,34]. Last, regarding the constructivist nature of the career adaptability concept, it is important to note that students should not be left alone to discover a career themselves [1,34]. To facilitate

career construction, students should be taught directly and explicitly by teachers the steps in career construction [1,55].

It is also worth noting that currently in Hong Kong, career guidance and counseling practices still focus predominantly on university admission counseling [67]. This approach is inadequate in helping students to develop a career in our technologically disrupted employment market today. This is because what students learn in university now can easily become obsolete by the time they graduate [1,68]. Another reason is that preliminary evidence has shown that young people in Hong Kong are increasingly raised in an overprotective environment. Recent empirical research conducted in Hong Kong has already shown that overparenting in Hong Kong is associated with maladaptive developmental outcomes [69,70]. A more sustainable way to help young people in Hong Kong to develop adaptability, therefore, is to help them to develop skills in cognitive, behavioral, and emotional regulation [6]. Students should also be informed on what possible academic/occupational development outcomes a particular decision they make may lead to [1,8,31,37,68].

In addition, a second problem worth addressing concerns how meaningful action research on adaptability could be conducted. Currently, induction courses are available to train regular schoolteachers to become career guidance teachers. However, these training courses do not have a practicum component, and it is not mandatory for schoolteachers to attend these courses before they perform career guidance duties [1,31]. A major drawback to this approach is that teachers are not given sufficient opportunities to learn how different career theories and concepts could be applied empirically to their school context [11]. Also, inherent problems within the career adaptability concept itself can create further problems for effective career guidance practices to take place [4].

Future research direction can focus on establishing convergent and divergent validity of the career adaptability construct in the Chinese setting. This clarification is essential as although surface-level linguistic relevance between the terms “career adaptability” and “adaptability” is evident, compared to the APA definition of adaptability, career adaptability carries a different conceptual meaning [4,5]. To enhance the study of career adaptability, future studies can also examine and analyze cognitive, behavioral, and affective variables in conjunction with scores of career adaptability indicated by the career adapt-abilities scale [25]. Data triangulation can also be applied to provide multiple perspectives on the assessment of career adaptability. Twin studies could also be performed to examine genetic influences in the formation of adaptability. Exploratory studies could also be performed to compare the CAAS with other published adaptability theoretical models for measuring career adaptability.

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