

Research on College Students' Developmental Assets, Career Adaptability and Career Self-efficacy

Ching-Pin Chen

Abstract—This study employed a questionnaire to investigate 497 college students across Taiwan to explore the relationship among developmental assets (DA), career self-efficacy (SE), and career adaptability (AL). And it found that: DA has a significant and positive impact on AL and SE. AL has a significant and influence on SE. Through the mediating role of AL, DA can affect SE. And the influence of internal assets on college students is prominently greater than that of external assets.

Keywords—developmental assets(DA) , career adaptability(AL) , career self-efficacy(SE)

I. Introduction

After graduation, no matter if students pursue further study or face employment challenge, their final goals are to expect smooth employment in the future and have a wonderful life. Undergraduates are specialized, energetic, and ambitious and can inject new vitality to the workplace. Therefore, their employment attracts the attention of all countries in the world. And they are expected to become new human resources for the workplace.

In light of Global Wage Report (2016/17) [12], after the economic crisis of 2008-2009, the actual wage growth rates of countries all over the world declined year by year. Low wages are unavoidable. Low-wage employment has gradually become a global trend [5] and a haunted nightmare for graduates all over the world. "Globalization" gradually has formed a "global economy", bringing about more new competitors to Taiwanese companies and difficulties in employment to young people.

Job seekers' self-efficacy is associated with career success and work efficiency [7], effective career decisions [26], and setting of career goals [18]. Those with high self-efficacy in career decision-making can make better choices and preparation for their careers and adhere to their professional pursuits [2]. Thus, it is a topic of global concern to facilitate college graduates to improve SE, smoothly get employed, and obtain reasonable treatment.

A. Developmental Assets(DA)

Developmental assets (DA) that can help young people develop cover a wide range of fields, including young people's experience, commitments, values, skills, and identities. With the support of families, schools, peers, and communities, DA

can help young people foster internal attitude, values, and abilities and become healthy, independent, and successful [3]. DA includes "external assets (EXDA) and "internal assets (INDA)".

"External assets" refers to the positive developmental experience provided by families, schools, communities, community groups, and other youth and family service organizations to young people. The positive developmental experience is extensively enhanced and supported by government policies, health care providers, law enforcement agencies, civil foundations, and other community organizations. EXDA, regarded as a support network providing young people with positive developmental experience related to community society systems. It serves as a source of consistent love and respect to young people, provides them with opportunities to strengthen abilities, leadership, services, and creativity, safe interpersonal relationships and physical norms, and high expectations for personal achievement. EXDA covers six dimensions, namely, "community support" (EXDA1), "encouragement from parents and teachers" (EXDA2), "family support" (EXDA3), "adult role model" (EXDA4), "family and school norms" (EXDA5), "caring school atmosphere" (EXDA6).

"Internal assets" stands for the qualities, skills, and attributes of youth cultivated by their communities and families, which can form their internal guidance system consisting of positive commitments, skills, and values system. Adolescents can make personal choices and take actions according to the level of assets and contribute to their own development. INDA is also considered as young person's motivation and commitment to academic achievement and lifelong learning, his or her positive personal values, social skills (including relationships and communication skills), and positive identity features, including internal characteristics like optimistic outlook on the future and the sense of purpose. INDA contains five dimensions, that is, "planned learning" (INDA1), "encouragement from parents and teachers" (INDA2), "positive recognition" (INDA3), "courage and restraint" (INDA4), and "planning and decision-making" (INDA5).

B. Career Adaptability(AL)

In order to achieve career success in the workplace full of uncertainties and competitions, workers need to develop professional abilities to adapt to and control their work. AL, as a personal psychological resource, can not only reduce negative experience and enable individuals to work actively, but also drive them to successfully make the transition from campus to workplace [21] [33] [35].

Ching-Pin Chen / PhD. candidate(author)
College of Management / Da-Yeh University
Taiwan(R.O.C)

Career adaptability combines willingness and abilities. It not only predicts the success of job hunting and serves as a key to profession and work-related results, but also reflects individuals' self-managing resources used to cope with career development tasks in different environments and situations and form hope for future work [14] [15] [17] [21] [30]. Meanwhile, AI is regarded as a resource and form required to face professional needs and challenges, address career changes, and manage transformation and trauma caused by career tasks [6] [31]. It also means the potential to ease negative psychological experience in occupational environment [29].

Career adaptability includes four dimensions, namely, career concern (AL2), career control (AL1), career curiosity (AL3), and career confidence (AL4).

C. *Career self-efficacy(SE)*

Career self-efficacy (SE) stands for individuals' confidence to obtain information and achieve objectives of activity plans in career, opinions, belief, and expectations to successfully complete one task, trust in themselves that they can meet special requirements of career-related tasks, degree of confidence to successfully handle tasks related to occupational decisions and profession [4] [24]. Thus, "SE" means the belief in occupational action formed under the influence of previous experience. The belief, in turn, affects one's career-related actions and decisions like occupational decision, expectations of occupational goals, and occupational motivation, which is usually closely related to personal career development.

Career self-efficacy includes three dimensions strength (SE2), difficulty (SE3), and analogy (SE1). Difficulty refers to the degree of difficulty that a person feels about a certain task. Intensity refers to one's degree of confidence to accomplish a task. Deduction can be understood as universality. It means if one's belief in expected success can be analogized to other scenarios or tasks.

D. *Impact of Developmental Assets on Career Adaptability*

Higher DA of youth leads to higher AL [9]. In DA, social support and AL have a positive correlation with each other [19] [34]. Parental support also has a positive influence on AL [16]. Therefore, this study deducts that DA has a positive impact on AL.

E. *Impact of Developmental Assets on Career self-efficacy*

Parental support in DA can improve self-efficacy in career decision-making [11] [28]. Parents provide resources to children to develop self-efficacy in career decision-making to meet academic challenges and difficulties [1] [25]. There is a positive correlation between parental support and self-efficacy in career decision-making. Parental support accounts for 29 % to 43% of the correlation with SE [32]. Parental support has a positive influence on self-efficacy in career decision-making

[20]. Parental support generates a positive influence on the career development and self-efficacy of minority students in the United States (e.g., [10] [27]). Therefore, this study deducts that DA also has a positive impact on SE.

F. *Impact of Career Adaptability on Career self-efficacy*

Jobseekers' self-efficacy is related to their AL. AL can drive their self-efficacy [14]. AL is positively correlated to self-efficacy [23]. Self-efficacy in career decision-making is linked to all the four dimensions of AL [8] [22]. Hence, this study deems that AL has a positive impact on SE.

G. *Impact of Developmental Assets on Career Adaptability and Career self-efficacy*

As parental support has a positive impact on both AL [16] and self-efficacy in career decision-making [11] [20]. Parental support is positively correlated to self-efficacy in career decision-making and AL [13]. We can see that, DA has a positive influence on both AL and self-efficacy in career decision-making. Hence, this study assumes that DA has a positive influence on both AL and SE.

H. *Research Hypotheses*

In summary, this study proposes four hypotheses:

- H₁: Developmental assets has a significant and positive impact on career adaptability and can directly predict career adaptability.
- H₂: Developmental assets has a significant and positive influence on self-efficacy and can directly predict career self-efficacy.
- H₃: Career adaptability exerts a significant and positive impact on SE and can directly predict career self-efficacy.
- H₄: Career adaptability plays a mediating role in the indirect influence of developmental assets on career self-efficacy.

II. Methodology

A. *Participants*

This study regarded public and private college students in Taiwan as its population. Samples were randomly selected. In the pre-test and the formal test, 280 and 550 students were selected from public and private colleges in northern, central, and southern Taiwan to receive tests. The valid recovery rate of the pre-test was 82.86%.

B. Measures

This study considered public and private college students in Taiwan as its population and randomly selected samples from students of seven public and private colleges in northern, central, and southern Taiwan to fill in the questionnaire sent in the forms of paper copies and electronic copies on Google. In the formal test, a total of 550 copies of questionnaire were distributed, while 512 were recovered. The recovery rate was 93.09%. After 15 copies with incomplete answers and invalid scale were excluded, the final valid copies recovered was 497. The effective recovery rate was 90.36%, including 220 copies from male students (44.9%) and 274 from female ones (55.1%).

After literature review, this study identified variables and used questionnaire as the main tool for collecting data. It used the self-developed questionnaire entitled "Undergraduate Career Status Survey". The questionnaire contained three main parts, namely, Part 1 "Basic Personal Information", Part 2 "Instruction on Completion", and Part 3 "Questionnaire", including three scales, that is, "Developmental Assets Scale", "Career self-efficacy Scale", and "Career Adaptability Scale". All the items of the three scales were scored with Likert 5-point scale. Subjects were asked to fill in the questionnaire according to their true experience and feelings. 5 points stood for "Highly match", while 4, "Match"; 3, "Partially match"; 2, "Not match"; and 1, "Extremely not match". For reverse coded items, reverse scoring should be adopted. Higher scores of the three scales indicated higher DA, SE, and AL perceived by respondents.

C. Statistical Analysis

SPSS for Windows 12.0 and Amos Version 20 were utilized for data statistics and analysis. The results are described as follows:

1. Reliability and validity analysis

According to the formal reliability test results of scales, the overall reliability of DA was 0.946 (50 questions), wherein the reliability of EXDA was 0.928 (28 questions), while that of INDA was 0.894 (22 questions). The overall reliability of AL was 0.918 (19 questions), while that of SE was 0.908 (16 questions). The Cronbach's α of reliability of all the dimensions of each of the three latent variables was greater than 0.6, indicating that all the three scales were reliable.

Principal component analysis was carried out for each of the three scales. The factor load of each question was above 0.4, implying good validity of the three scales.

2. Factor analysis

Varimax rotation was employed for principal component analysis. The reserved eigenvalue was bigger than 1. And at least the factors of three questions were included. The questions whose factor loading was bigger than 0.5 were selected. In light of rotation sums of squared loadings (eigenvalue) in Scale of Explanation of Total Variation, the factors bigger than 1 could be identified. The explained variance of DA (11 factors selected) accumulated to 55.96%.

The original explained variance of the first factor (maximum) was 27.75%. The explained variance of AL (4 factors selected) accumulated to 56.47%. The original explained variance of the first factor (maximum) was 40.48%. The explained variance of SE (3 factors selected) accumulated to 59.26%. The original explained variance of the first factor (maximum) was 40.19%. After factor analysis, the factor loading of 50 questions in DA Scale, that of 16 questions in SE Scale, and that of 19 questions of AL were all bigger than 0.5.

As the original explained variations of the first factors (max) of the three scales were 27.75%, 40.48%, and 40.19%, all of which were smaller than 50% and failed to explain most of the variations, common method variance (CMV) was not obvious.

3. Correlational analysis

In accordance with non-parametric (Spearman's rank) correlation analysis, correlation test of the total scores of the three variables was conducted. The results are as follows:

The correlation coefficient between DA and AL was 0.588. That between external DA and AL was 0.467. That between internal DA and DA was 0.646. All their significance (two-tailed) reached the significant level of 0.01.

The correlation coefficient between DA and SE was 0.646. That between external DA and SE was 0.538. That between internal DA and SE was 0.682. All their significance (two-tailed) reached the significant level of 0.01.

The correlation coefficient between SE and AL was 0.759. The significance (two-tailed) reached the significant level of 0.01.

We can see that, any two of the three variables, DA, AL, and SE, are correlated with each other. And the significance (two-tailed) reaches the significant level of 0.01.

Partial correlation analysis was conducted with AL and SE as control variables. It turned out that, the correlation between any two of the three latent variables is not affected by the third variable. And the precision of bivariate correlation analysis is not affected.

4. Pairwise sample t-test

In accordance with the pairwise sample t-test, average INDA less average EXDA accounted for 95% of difference. The confidence interval was between 0.657 and 0.148. t value = 5.12. Significance (two-tailed) was 0. And 0.05 significance was reached. As a result, the college students' overall cognition of "INDA" is significantly higher than that of "EXDA".

5. Evaluation of the overall (structural equation) model

1) Test of offending estimates

The test criteria include if the standardized regression weighting coefficient is over or too close to 1 (greater than 0.95), if there is a big standard error, and if there is a negative error variation. The test of tables of variances in catalogs of estimates in the three scales demonstrated that, the

standardized regression weighting coefficients (SFLs) of all the questions were between 0.39 and 0.91, none of which were over or too close to 1. The standard error (SE) of factor loading was between 0.13 and 0.27. There was no big standard error. The variance of measuring error (EV) was between 0.17 and 1.42, all of which were positive. There was no offending estimate.

2) Assessment of goodness of fit of the overall model

(1) Absolute fit indicator

Amos was used to test absolute fit indicator. The overall model's CMIN, χ^2 (chi-square value) = 270.61 (P = 0). χ^2/df (chi-square value/degree of freedom) = 2.819. GFI (goodness of fit) indicator) = 0.940. AGFI (fit indicator after adjusting degree of freedom) = 0.904. RMR (root mean square residual) = 0.026. SRMR (standardized root mean square residual) = 0.0432. RMSEA (approximate error root mean square) = 0.661. All were in line with academic standards.

(2) Incremental fit indicator (IFI)

Used for IFI test. It was found that the NFI (normed specification indicator) = 0.938. NNFI (TLI) (non-normed fit indicator) = 0.941. CFI (comparative fit indicator) = 0.958. RFI (relative allocation) = 0.912. IFI (incremental fit indicator) = 0.959. All of them were greater than the academic criterion of 0.9.

(3) Parsimony fit indicator

Amos was employed to test parsimony fit indicator. It was found that PNFI (parsimony normed fit indicator) = 0.662. PGFI (parsimony fit indicator) = 0.59. All of them were greater than the academic criterion of 0.5. CN = 220, greater than the academic standard of 200.

The assessment results of fit indicators of the overall model showed good fit of the overall model.

3) Test of model parameter estimation

The parameter estimation results of the overall model implied that, standardized regression weighting coefficient (R) and error variation of all the dimensions of the three variables (DA, AL, and SE) reach the significant level of 0.05. In both the figure of the original preset recognition method and the figure after change in recognition method, the values of *t* (C.R.) were both greater than 1.96. Except that the squares of multivariate correlation SMC (R²) of the six dimensions of EXDA3 (0.35), EXDA5 (0.34), INDA1 (0.16), INDA3 (0.27), INDA4 (0.36), SE1 (0.37) was not greater than the ideal standard of 0.4, those of all the remaining dimensions were all greater than 0.4 and had explanatory power.

According to covariances obtained after estimation of "figure of fit of the overall model after modification (Figure 1)", the following co-variation relationships exist among the dimensions of the three latent variables:

(1) Between developmental assets and career adaptability

The covariance between positive identification (INDA3) of DA and AL was 0.05. That between planning and decision-making (INDA5) and AL was 0.025. That between care

(INDA2) and AL was 0.028. That between planning and decision-making (INDA5) and occupational ability (AL3) was 0.047. All of them reached the significance of 0.001. That between planned learning (INDA1) and occupational concern (AL2) was 0.045, reaching the significance of 0.01.

(2) Between developmental assets and career self-efficacy

The covariance between positive identification (INDA3) of DA and analogy of SE (SE1) was 0.047. That between community support of DA (EXDA1) and strength of SE (SE2) was -0.064. Both reached the significance of 0.001.

(3) Between career adaptability and career self-efficacy

The covariance between occupational ability of AL (AL3) of DA and analogy of SE (SE1) was 0.05, reaching the significance of 0.001.

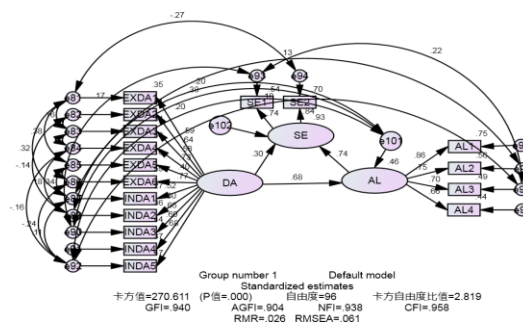


Figure 1 Figure of fit of the overall model after modification

4) Test of hypotheses

In light of the parameter estimation results of the overall model, the path coefficient of DA to AL was 0.677. *t* value was 11.26, greater than the standard of 1.96, implying that the estimated value of path coefficient is significant. Hence, H₁ is valid. The path coefficient of DA to SE was 0.302. *t* value was 3.45, greater than the standard of 1.96, implying that the estimated value of path coefficient is significant. Hence, H₂ is valid. The path coefficient of AL to SE was 0.736. *t* value was 3.61, greater than the standard of 1.96, implying that the estimated value of path coefficient is significant. Hence, H₃ is valid.

H₄ was tested by hierarchical regression analysis and implementation of model 2 after modification.

(1)Conducted the first and the second hierarchical regression analysis In the first hierarchical regression analysis, major was regarded as the control variable. DA was considered as the predictor variable. Regression analysis on dependent variable SE was conducted, implying a significant impact. The regression coefficient was 0.54 (t = 14.08) and significant. Hence, DA has a significant impact on SE.

When DA and AL (as a mediating variable) were both regarded as predictor variables and regression analysis of SE was conducted, the regression coefficient was 0.67 (t=18.26)

and significant. Thus, DA and AL have a significant influence on SE.

However, after the mediating variable, AL, was added, the predictive power of DA to SE dropped from 0.54 ($t = 14.08$) to 0.14 (significant, $t = 3.74$). And the predictive power of R² increased from 0.29 to 0.58 (significant. F value was 333.51).

After the second hierarchical regression analysis, when DA was used as the predictor variable, and regression analysis on AL was carried out, the regression coefficient was 0.60 and significant ($t=16.50$). Therefore, DA has a significant influence on AL.

In Mode 1, the influence of DA on SE was tested. In Mode 2, AL was included as an independent variable. The results of the first hierarchical regression analysis showed that, after the inclusion of the mediating variable (AL), the regression coefficient of DA to SE became smaller. The explanatory power rose. And all the four conditions in the test of mediating variable were met.

Therefore, this study proved that DA can influence SE, through the mediating role of AL. And the mediating effect is partial.

(2) Model after modification

Modification indices provided by AMOS and changes in parameters expected were used to modify the model in order to add correlation among variables (co-variation) or influence path among variables and delete independent paths (e.g. SE3). Meanwhile, "career curiosity" was changed to "occupational ability" (AL3) which was more appropriate.

The model execution results after modification demonstrated each path coefficient. In accordance with the influences of each latent variable on the overall model, DA has a positive and direct influence on AL. The value was 0.677.

If AL was not involved, the direct influence of DA on SE was 0.86. When AL intervened the influence of DA on SE, there were two types of influences, that is, positive & direct influence (0.302) and positive & indirect influence ($0.499=0.677*0.736$). The total influence was 0.8 ($=0.302+0.4986$). AL also has a positive and direct impact on SE. The value was 0.736.

If AL was not involved, the direct influence of DA on SE was 0.86 ($t = 9.16$), reaching a significant level. When AL was involved, the direct influence of DA on SE was 0.302 ($t = 3.45$), reaching a significant level. The total influence was 0.8.

The influence coefficient of DA to SE dropped from 0.86 ($t = 9.16$) to 0.302 ($t = 3.45$) after the involvement of AL. The original explained variance (R²) of DA to AL was 46%. After DA combined AL, their joint explained variance (R²) to SE rose to 93%. All these implied that, AL plays a mediating role in the influence of DA on SE. Based on these results, H₄ is valid.

Based on the comparison of INDA and EXDA, the standardized estimated value of INDA was 0.93 (t value = 23.41) greater than that of EXDA, 0.73 (t value = 17.53). Both

reached the significant level of 0.001. Therefore, H₅ is also valid.

5) Impact analysis

The impact analysis results displayed that, DA has a positive and significant impact on "community support" (EXDA1), "encouragement from parents and teachers" (EXDA2), "family support" (EXDA3), "adult role model" (EXDA4), "family and school norms" (EXDA5), "caring school atmosphere" (EXDA6), "planned learning" (INDA1), "care" (INDA2), "positive recognition" (INDA3), "courage and restraint" (INDA4), and "planning and decision-making" (INDA5).

SE has a positive and significant impact on analogy (SE1) and strength (SE2).

AL has a positive and significant impact on occupational control (AL1), occupational concern (AL2), occupational ability (AL3), and occupational confidence (AL4).

III. Results

This study reaches the following conclusions:

1.The results of this study support H₁ to H₄.

The results show that, higher awareness of DA of undergraduates leads to higher perceived AL. Higher awareness of DA results in higher perceived SE. Higher awareness of AL indicates higher perceived SE. DA can influence SE through the mediating role of AL. And the mediating effect is partial.

2.The influence of INDA on undergraduates is greater than that of EXDA, implying that, during the four-year study at campus, undergraduates are more greatly affected by INDA than by EXDA.

3. There is co-variation among the three latent variables, i.e. DA, AL, and SE.

After modification, the fit of the overall model is shown in Figure 1. Positive recognition (INDA3), planning and decision-making (INDA5), encouragement from parents and teachers (INDA2), and planning and decision-making (INDA5) in DA have co-variation with occupational ability (AL3). Planned learning (INDA1) has co-variation with occupational concern (AL2).

Positive recognition (INDA3) in DA has co-variation with analogy (SE1) in SE. Community support of DA (EXDA1) and strength of SE (SE2) have co-variation.

Occupational ability (AL3) in AL and analogy (SE1) in SE have co-variation.

IV. Discussion

The conclusions of this study point out that, DA has a significant and positive impact on AL and SE. Meanwhile, AL has a significant and positive influence on SE. Through the partial mediating role of AL, DA can affect SE. During the

four-year study at campus before entering the workplace, undergraduates are more greatly influenced by INDA than EXDA. There is co-variation among the dimensions of the three latent variables.

These results imply that, the improvement in DA and AL of undergraduates is a direct and feasible way to enhance their SE. Moreover, the improvement in the positive recognition, planning and decision-making, encouragement from parents and teachers, planning and decision-making, and planned learning of INDA can more effectively improve AL.

During the four-year study at campus before entering the workforce, college students are more greatly affected by INDA than by EXDA which is closely related to the workplace, indicating that, undergraduates do not have sufficient preparation for future career. They are expected to enhance EXDA to strengthen AL and SE so as to step into the workplace smoothly.

On the one hand, these findings can serve as important reference for life and career counseling of universities and provide beneficial guidance to undergraduates to smoothly get employed and find the jobs they want so as to avoid low-salary employment or unemployment. On the other hand, these findings can facilitate employers to learn the employment status quo of workplace newbies, facilitate the latter to improve DA and AL, and stimulate their SE in order to increase work efficiency and reduce job burnout and intention of resignation.

v. Limitations and Future Research

Although low-wage employment and unemployment have become a common phenomenon in all countries in the world, the findings of this study demonstrate that, in order to promote SE, one can start from improving positive recognition of INDA, community support of EXDA, and AL. As the subjects of this study are students in Taiwan, in order to apply these conclusions to other countries or regions, it is necessary to explore subjects of different ethnic cultures and countries.

There are still some deficiencies in this study. In the future, it will be compliant with employment demands and worth of deep exploration to appropriately apply these conclusions to longitudinal studies and if the same subjects can truly avoid low-wage employment or unemployment by improving DA, AL, and SE four years after graduation.

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About Author (s):



Ching-Pin Chen

PhD candidate of the College of Management, Da-Yeh University, Taiwan(R.O.C)