THE RELATIONSHIP BETWEEN THE UNDERGRADUATES' FLOW AND PSYCHOLOGICAL WELL-BEING--TAKE LOVE AFFAIR EXPERIENCES AS THE MODERATOR VARIABLE

Chou, Mei-Ju
Assistant Professor, Early Childhood Education Department, National Pingtung University, R. O. C.

Tsai, Show-Sau
Doctoral candidate**,** Dept. of Education, National Kaohsiung Normal University, Taiwan, R. O. C.

Hou, Ting-Yu
Edd. Director, Bureau of Education, Kaohsiung City Government, Taiwan, R. O. C.
&
Wu, Ho-Tang
Professor, Dept. of Education, National Kaohsiung Normal University, Taiwan, R. O. C.
(Corresponding author)

ABSTRACT

This study aims to analyze whether Undergraduates those who have love affair experiences moderate the relationship between flow and psychological well-being. In accordance with the literature analysis results, we proposed the hypothesis H_1: "flow is significantly positive correlative with psychological well-being", and H_2 as the hypothesis verification: love affair experiences have moderating effect on "the relationship between flow and psychological well-being". We took the students in Taiwan's colleges/universities as the research results, and adopted cluster sampling. Then the participants were tested by the Positive Emotion Scale and the Psychological Well-being Scale. There were totally 956 questionnaires returned, among which there were 272 (25.1%)freshmen, 263 (27.5%)sophomores, 216(22.6%) juniors, and 105(22.2%) seniors. In regard of love affair experiences; there were 381(39.9%;) undergraduates who did not have love affair experiences in the past, 351(36.7%) ones that were in love, and 218(22.8%) ones that ended their love affairs. Age's M＝20.37, SD=1.11. After analyzing the data from the returned questionnaires with SEM, the results show that H_1:"flow is significantly positive correlative with psychological well-being" and H_2 love affair experiences have moderating effect on "the relationship between flow and psychological well-being" are both supported.

Keywords: Flow, psychological well-being, love affair experiences.

INTRODUCTION

Flow is a term for the psychological state that accompanies highly engaging activities, quick time passing, and attention completely focused on the activity (Csikszentmihalyi, 2000). Regardless of personal workplace or emotions, flow casts a positive influence, as research results have shown that flow is significantly associated with energy after work (Demerouti, Bakker, Sonnentag, & Fullagar, 2012), harmonious passion for work (Houlfort,et al., 2015), intrinsic task-specific motivation (Conti, 2001), positive affect (Chiang, Lin, Cheng, & Liu, 2011; Rogatko, 2007), visual creativity(Cseh, Phillips, & Pearson, 2015), and exhaustion reduction (Zito, Cortese, & Colombo , 2015), all proving the importance of flow.

In addition, psychological well-being(PWB) refers to the perception that the individual has developed a kind of potential to pursue meaning life and self-fulfillment (Ryff & Keyes, 1995). PWB tradition draws heavily on formulations of human development and existential

challenges of life (Keyes, Shmotkin, & Ryff, 2002), and has great influence on man's body and mind. For example, it relates to age discrimination and body esteem(Sabik, 2015), social identification (Bratt, 2015), interaction involvement in class(Carton & Goodboy, 2015), and savoring(Smith & Hollinger-Smith, 2015). Moreover, in Salsman et al's (2014) research, it is found that the higher the PWB is the more people can cope with the challenges in the living environment. Similarly, the higher one's resilience, endurance, and optimism is, in physical aspect, both men and women will have stronger, and the occurrence rate of illness will be lower as their PWB get better. In the meantime, Loth, Wall, Larson, and Neumark-Sztainer (2015) found that eating behaviors relate to PWB as well.

Flow and PWB are not only influential on human body and mind, they correlate as well. For example, Nakamura & Csikszentmihalyi (2003) pointed out that flow has 7 dominant characteristics: 1. 1. Intense; 2. Focused concentration on the here and now; 3. Loss of self consciousness as action and awareness merge; 4. Feeling that he/she can control everything because of knowing what will happen in the next step; 5.Feeling that time passes more quickly or slowing than it usually does; 6. Feeling that taking part in activities is a kind of encouragement in itself; 7. He/she does not care about the results. Nakamura and Csikszentmihalyi (2009) held that the most important characteristic is "fully concentrated", which is like what Carr (2005) indicated that when people indulge themselves in challenges, such challenges are controllable, the motivation generated by the individual comes from the inner self, and belongs to a kind of unique and sole psychological feeling. At this point, what they feel is exactly PWB. On the other side, Nakamura & Csikszentmihalyi (2014) considered that a good life is one that *is* characterized by complete absorption in what one does. That is to say, in complete absorption in what one does, he/she can obtain a good life; namely, PWB, which is also aligned with what Diener & Seligman (2002), Seligman & Csikszentmihalyi (2000) claimed that processes like engagement and flow are central to well-being.

Next, flow originates from positive psychology(Seligman, 2002), PWB is also founded upon positive psychological functioning in the positive psychology (Ryff & Keyes, 1995). And, engagement is synonymous with PWB, and the engagement is about flow(Seligman, 2011), since PWB is considered to be consist of positive emotion, engagement, relationships, meaning, and accomplishment (Croom, 2015).

Thirdly, from the angle of Maslow's (1969) hierarchy of needs, the highest level is self-fulfillment. To exemplify it, if the issue or task is challengeable and meaningful, people will engage in it even more positively. Subsequently, in addition to get approved and respected by the peers, it will be easier for the individual to obtain flow or peak experience(De Klerk, 2005). Maslow asserted that more peak experiences can lead to more self fulfillment that is a state like what Ryff and Keyes (1995) proposed the experience of one's achieving perfection through bring his/her own potential to the full play. Also, Cake, Bell, Bickley, and Bartram (2015) found that PBWderives from living a life that is engaging, meaningful, and deeply fulfilling, and it is flow that enhance PWB upon obtaining peak experience.

To sum up, flow and PWB have positive correlation. Some research support this argument as well, like Bloch (2002), Delle Fave and Massimini (2004), and Fullagar and Kelloway (2009) have found flow experiences to be positive association with well-being, Cheng and Lu (2015) found the flow experience plays a mediating role between recreational involvement and well-being. However, in Taiwan, no studies are conducted with the undergraduates as the research

subject to prove the two's relationship, and this is what drives this study to propose H_1:"flow is significantly positive correlative with psychological well-being".

On the analysis above, other than the correlation between flow and PWB, both are influenced by love affair experiences. Love is one of the most desired feelings by human beings (Haack & Falcke, 2014). In Taiwan, the undergraduates are aged from 18-22 years old, located at the adult stage in Erikson's (1963) psychosocial developmental theory with the development crisis of intimacy versus isolation. If the crisis is overcome, then the smooth development characteristic turns out to be intimacy, which one of the sources is love affairs. Namely, one of the approaches that undergraduates obtain intimacy is falling in love. Just like Argyle and Henderson's (1985) proposal asserts, the self-openess, mutual care, and physical intimate touch are all main factors that affect PWB, and Tashiro and Frazier (2003) also indicated that love relationship is often the source of well-being. That is to say, whether one falls in love will influence well-being.

Then, to view from Lee's (1973) colors of love, love affairs can be categorized into 6 basic types: passion, game-playing love, friendship love, practical love, possessive, dependent love, and altruistic love. In addition, Sternberg (1997) proposed triangular theory of love, and developed the Love Scale divided into intimacy (including closeness, enthusiasm, and self-disclosure), passion (including positive and negative feelings, sex desire, and various social needs), and decision/commitment (including short-term and long-term determination to attempt to maintain intimate relationship). Or, as Hatfield and Rapson proposed (1993, 2009), passionate love (intense longing for union with another) and companionate love (deep affection toward someone with whom your life is intertwined). All make us seen the variety of types of love affairs.

No matter what type the love affair belongs to, falling in love influences PWB. For instance, intimacy consists of the following elements: the desire to promote the other person’s well-being; the happiness to share life experiences; mutual respect; the possibility to be present at the necessary moments in the partner’s life; the understanding to share life and material goods with the other person; granting and receiving emotional support; communication and acknowledgement of the partner’s value. People who are more satisfied with their romantic relationship commonly experience situations in other life contexts (work, group of friends etc.) more positively. Thus, satisfaction in the relationship is an important predictor of psychological well-being (Haack & Falcke, 2014).

In addition, love affair experiences also affect flow, which refers to the individual is completely indulged in and concentrates on the activity. In this period, the individual is not conscious of the external, and time passes swiftly unconsciously as well (Boniwell, 2006). Men and women are bathed in love, so it is natural that they have no idea of time. However, in addition to love affairs, the undergraduates have to engage themselves in schoolwork and participation in clubs, and flow in this study refers to engagement and involvement in issues (which may come from schoolwork or job, or daily life), so flow of the undergraduates in love may be affected. As for those who end the love affairs, they may have to deal with the pains after ending the love, so that they are unable to concentrate on various issues. Lastly, those who never fall in love are free from the happiness and sufferings in love affairs, so they can concentrate on and engage in learning and solving a diversity of issues.

In short, it seems that whether one has had love affairs experiences generates moderating function between flow and PWB. Since there are no studies investigating on such moderating

effect in Taiwan up to now, this study proposed H_2: The undergraduates' love affair experiences can moderate the relationship between flow and PWB.

RESEARCH DESIGN

Research Sample

This study examined undergraduate students in Taiwan at the 2014 school year. Participants were selected by cluster sampling, and extracted first to forth-grade each university to study entire classes(One class in each grade from freshmen to seniors). This study drew samples 10 universities and distributed 1000 questionnaires. A total of 980 questionnaires were returned, yielding a recovery rate of 98.0%. After disregarding invalid (the same options, like all are 3) and incomplete questionnaires by listwise deletion method (delete the item when any is unanswered), we analyzed data from a total of 956 valid questionnaires, which corresponded to a valid recovery rate of 97.6%.

Among the samples, in regard of gender, there were 240 males (25.1%), 716 females (74.9%); for grade level, there were 272 Grade 1 students (28.5%), 263 Grade 2(27.5%), 216 Grade 3(22.6%), and 205 Grade 6 students (21.4%). Concerning experience of love, never experience is 381 (39.9%), in love is 351 (36.7%), and end love end the love affairs is 218 (22.8%). In regard of Age, M＝20.37, SD=1.11.

Research Framework

This study explores whether the relationship between flow (the independent variable) to PWB (the dependent variable) is influenced by love affair relationship (the moderator variable) score, and draw the relationship among the variables as the research framework diagram (Fig. 1).

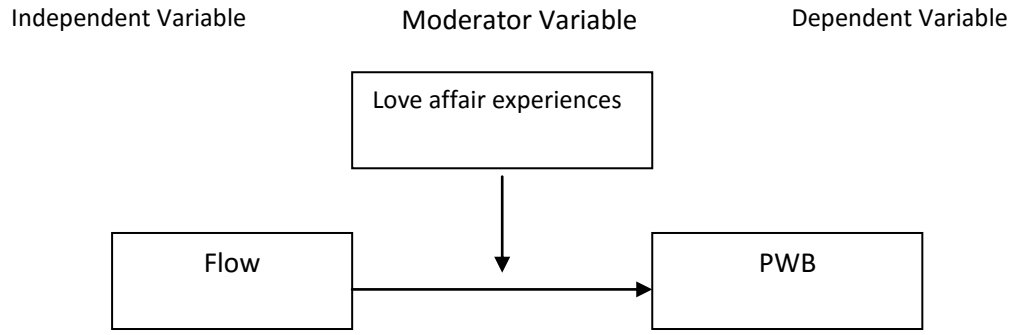

Fig. 1 **Research Framework Diagram**

RESEARCH TOOLS

Scale of Flow

This study adopted Hou's (2012) Dimension of Flow in Positive Emotion Scale for Taiwan undergraduates, and there are totally 9 items. This scale mainly consulted Csikszentmihalyi's (1990) theory of flow, Fredrickson's (2001) Broaden-and–build theory, Seligman's (2003) theory of positive emotion to design. The scale adopted CFA, and the results show that the composite reliability of this dimension was .84, meeting the standard .60, and the average variance extract amount is .37, lower than the standard of .50. Therefore, this study used EFA

(*N*=100) to analyze. EFA exerted principal axis method and free extraction factor, and the result extracted one with eigenvalue 5.33, the commonality ranged .33-.68, the factor loading ranged .58-.80, the total amount of variability is 54.33%, and the total reliability is .91. Before starting answering the items, this questionnaire describes "in the following items, you are inquired about the attitudes towards solving the problems you are fond and with all your might", which include: 1. Before completing the problem, I am always thinking about it; 2. I am enthusiastic at solving the problem; 3. I never give up easily; 4. When I encounter an problem, I will ask whoever I meet; 5. In dealing with problems, I will confirm the steps for conduction; 6. For what I like to do, I do not care about reward or payment; 7. I can completely remember all procedures of problem solving; 8. I enjoy the sense of achievement in the process of problem solving; 9. When I solve the problem, I often spend a lot of time unconsciously.

Since flow consists of single dimension and 9 items, in treating SEM, we can do item parceling, which has been asserted by R. B. Cattell in 1956, and adopted in the fields of psychology and educational testing, and suggested use item parcels as indicators of the latent constructs (quoted from Hall, Snell, & Foust, 1999). In addition, several authors all agree that item parceling is a beneficiary practice within SEM (e. g. Little, Cunningham, Shahar, & Widaman, 2002; Nasser & Takahashi, 2003). Consequently, this study combined Item 1, 4, 7 into Dimension of Flow 1, Item 2, 5, 8 into Dimension of Flow 2, and Item 3, 6, 9 into Dimension of Flow 3.

Psychological Well-being Scale

Wu, Wu, & Wu (2015) developed the Psychological Well-being Scale for college students in Taiwan. This Scale is on the basis of Ryff and Keyes's (1995) six factors, including autonomy, environmental mastery, self-acceptance, positive relationship with others, personal growth, and purpose of life, because the six factors (dimensions) are utilized by the international scholars like Clarke, Marshall, Ryff, and Wheaton (2001) employed Canadian elders, Van Dierendonck (2004) invited the undergraduates and community adults in Holland, Chen and Chan (2005) included adults aged 18-86 in Hong Kong, Abbott et al (2006) adopted British females aged 52 and were verified by CFA, all leading to the conclusion that the 6 factor model is very appropriate. Consequently, this study also exerted the 6 factors as the dimensions of PWB.

Wu, Wu, & Wu (2015) employed the undergraduates in Taiwan region. After the survey, there was one item with overly low factor loading in the initial model's CFA (N=355) results, so the item was deleted, and proceeded the second CFA, called the modified model. In the modified model, χ^2=425.80, df=146, p=.00, RMSEA=.07, AGFI=.85, TLI=.91, and CFI=.93, signifying that the model is fairly acceptable. Then, we continued to analyze the basic fit, the results showed no offending estimation, signifying good quality of the items. On the other side, in regard of the internal structure's fit analysis, the composite reliability and the construct discrimination of all items meet the standard, and the 6 composite reliability items were autonomy .74, environmental mastery .77, self-acceptance .86, positive relationship with others .74, personal growth .76, purpose of life .79; the average variance amount were autonomy.50, environmental mastery .53, self-acceptance .61, positive relationship with others .50, personal growth .51, purpose of life .56. Finally, with Satisfaction with Life Scale developed by Diener, Emmons, Larsen & Griffen as Criterion-related validity analysis, the results also showed significantly positive correlation, and the representative items and dimensions are: : Even though my classmates might not like my

behaviors and attitudes, I will stand for what I believe(Autonomy), I can deal with every report and assignment appropriately even during finals(Environmental mastery), I am satisfied with my performance in school(Self-acceptance), In class, we trust each other(Positive relationships with others), In terms of learning skills and strategies, I can feel that I am growing(Personal growth), The goals that I set have been achieved(Purpose in life).

Data Process

The research adopted loving experience as the moderating effect , and the examination of moderating effect adopted SEM multiple group to do model comparison. First, in Amos, we will separately draw and design college students' three group flow, including having no love experience, in love affair, and separated with lovers and PWB initial model, we design three information path coeffient as free estimation, and based on it to design baseline model. Furthermore, based on Bentler and Bonnet(1980) suggestions, we put three group flow and the path coefficient of PWB as similarity. Finally, comparing $\Delta\chi^2$, , when the value approaches significant, it means that the moderating effect exists.

RESULTS AND DISCUSSION

Product-Moment Correlation

From Table 1, it is observed that correlation between flow and PWB ranges between .32-.49, both reaching the significant standard. Since the results meet the requirement of the theory, we continued to verify with SEM and analyzed the moderating effect.

Table1 The product-moment correlation between the dimensions of flow and PWB

	1	2	3	4	5	6	7	8	9	*M*	*SD*
1. Flow 1	1.00									10.79	2.11
2. Flow 2	0.79	1.00								11.55	2.08
3. Flow 3	0.70	0.78	1.00							11.49	2.10
4. Autonomy	0.44	0.45	0.40	1.00						10.47	2.18
5.Environmental mastery	0.42	0.43	0.42	0.57	1.00					11.21	2.14
6.Self-acceptance	0.41	0.41	0.38	0.59	0.63	1.00				14.08	2.83
7.Positive relationship with others	0.39	0.43	0.45	0.40	0.54	0.62	1.00			11.51	2.05
8.Personal growth	0.43	0.46	0.44	0.49	0.57	0.66	0.69	1.00		11.50	2.01
9.Purpose of life	0.33	0.30	0.30	0.43	0.48	0.58	0.44	0.49	1.00	9.80	2.51

Note: N＝956. The values in the table all reach the significant standard .001.

SEM ANALYSIS

Verified Results of the Flow and PWB's Initial Model

The results of fit indicator verification are: χ^2＝119.34, df＝26, and p＝.00, reaching significant difference, not meeting the standard p＞.05. However, the values are affected by the number of people easily, so they are for reference only. SRMR＝.04, meeting the standard p<.05.; RMSEA＝0.09, not meeting the standard p<.08. However, MacCallum, Browne and Sugawara (1996) considered the value ranges .08-.10, so the model is fairly fit. Meanwhile, GFI=.95, AGFI=.91, TLI=.95, CFI＝.96, all meeting the .90 standard.

Additionally, it is found from the basic fit analysis that: 1. In Θ_ε matrix elements, ε_1 to ε_9's error variances are all positive; 2. the *t* value of all error variances range 7.89-14.32, and all reaching the significant standard .001; 3. the parameter's standard error ranges .05 - .09, not large standard error; 4. The factor loading (λ_1-λ_9) of the latent variable and the measuring indicator ranges .63-.92, meeting the standard p >.50 and <.95. To conclude, the initial model's basic fit meet the indicator without "offending estimation" called by Hair, Anderson, Tatham, and Black (1998) (meaning the output data do not exceed the acceptable range). Therefore, as a whole, the basic fit is good.

In short, in addition to the initial model's fit indicator χ^2 meeting the standard, SRMR, AGFI, TLI, and CFI are all acceptable. Although not all fit indicators meet the standard, most indicators do. Therefore, this initial model is acceptable.

Owing that the initial model results are acceptable, we further recount correlation between the two latent variables, flow and PWB. The results show that the two variables' r=.63(See Fig. 2, estimate=-.51, *SE*=.05, t=-11.47, p<.001), signifying reaching the significantly positive correlation between flow and PBW.

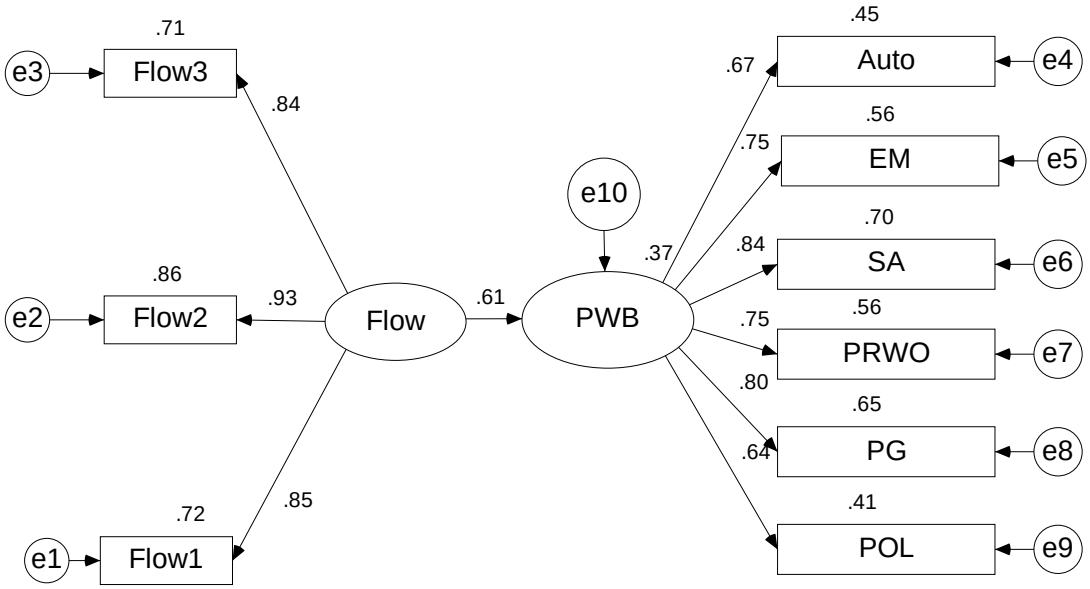

Fig. 2 Initial model's verification (Standardized solution)
Note: 1. Auto= autonomy. EM=environmental mastery. SA=self-acceptance. PRWO=positive relationship with others. PG=personal growth. POL=purpose of life.

Data on the Observation Indicator are individual reliability
(2) Analysis of the love affair experiences' moderating effect

Due to all samples' verification results of the initial model are acceptable, so SEM multi-groups were further used to verify the moderating effect of no love affair experiences, in love, and end love affair on the relationship between flow and PWB. We got the results that: χ^2=369.80, *df*=114, and p=.00 reached the significant difference, but not meet the standard p>.05; SRMR=.04, meeting the standard of < .05; RMSEA=.05, meeting the standard of <.08. In addition, GFI=.92, AGFI=.90, TLI=.95, and CFI=.95, all meeting the standard of .90. As for the path coefficient of flow and PWB for the three groups--no love affair experiences, in love, and ending love relationship-- are .67, .62 and .55, respectively. In model comparison, $\Delta\chi^2$=6.12, *df*=2, and p=.04, it reached significant difference, implying

that love affair experiences has moderating effect on the relationship between flow and PWB (see Fig. 3).

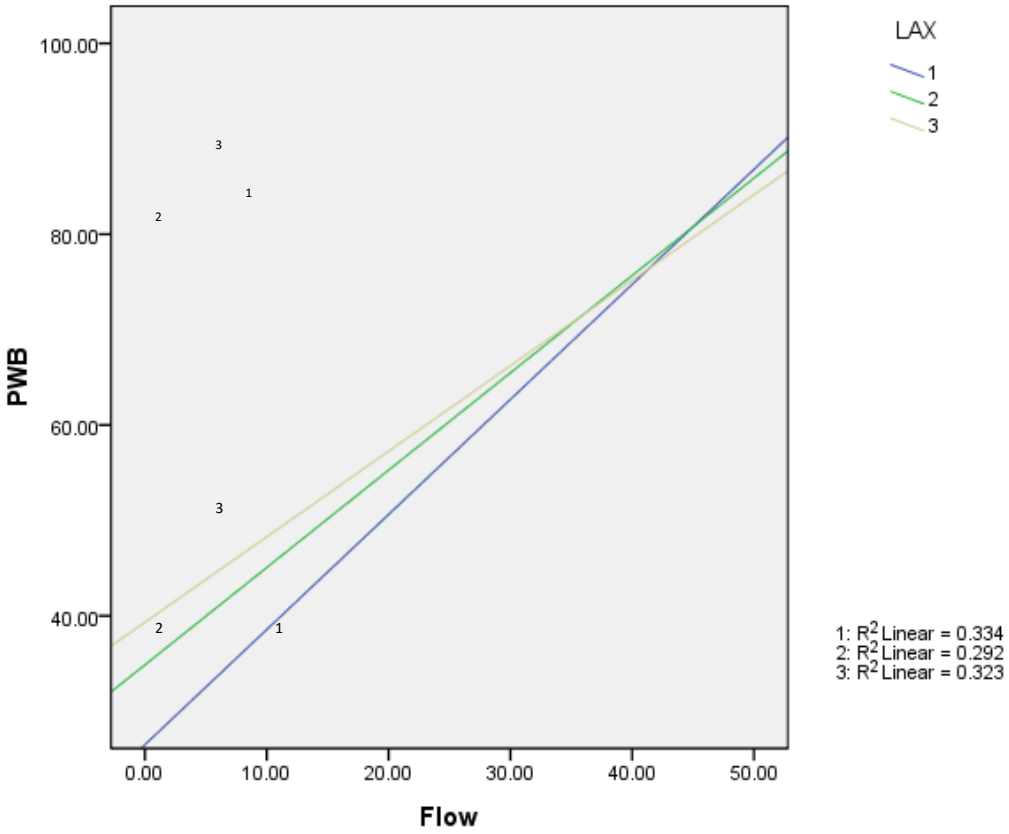

Fig. 3 Multiple Regression Lines
Note: LAX: love affair experiences: 1. no love affair experiences, 2. in love, 3. ending love relationship

COMPREHENSIVE DISCUSSION

With teacher education students as the research subject, this study explores whether there is the condition of Love affair experiences have moderating effect on "relationship between flow and PWB". To begin with, SEM was exerted to verify all samples' initial model, and it is found that flow and PWB has significantly positive correlation, implying that " H_1 : flow and PWB has significantly positive correlation" is supported. The reasons are: flow refers to one is completely indulged in certain activity without paying attention to existence of other things. Such experience itself accompanies incredible joy that drives one to pay even huger price (Nakamura & Csikszentmihalyi, 2009). Nakamura and Csikszentmihalyi (2003), and Nakamura and Csikszentmihalyi (2009) even indicated that the most important characteristics of flow is focused concentration on the here and now, which will generate a short-term peak experience (Demerouti et al., 2012), As people concentrate on specific thing wholeheartedly, they will obtain more peak experience for them to practice self-actualization. As for PWB, it means the individual develops the potential to pursue a meaningful life and self fulfillment

(Keyes et al., 2002). The hypothesis that flow and PWB has significantly positive correlation is supported.

Additionally, it is found in SEM multi-groups' verification that in the three groups--no love affair experiences, in love, and ending love relationship-- their path coefficient of flow and PBW are different; the first is the highest, and the last is the lowest. Besides, in model comparison, $\Delta\chi^2$ reaches significant difference, demonstrating that love affair experiences have moderating effect on relationship between flow and PWB. Therefore, the H_2 : Love affair experiences have moderating effect on "relationship between flow and PWB" is supported as well, because the main tasks for the undergraduates are not restricted to love affairs, they have to engage themselves in schoolwork and participation in clubs, and flow in this study refers to engagement and involvement in issues (which may come from schoolwork or job, or daily life), so flow of the undergraduates in love may be affected. As for those who end the love affairs, they may have to deal with the pains after ending the love, so that they are unable to concentrate on various issues. Lastly, those who never fall in love are free from the happiness and sufferings in love affairs, so they can concentrate on and engage in learning and solving a diversity of issues.

CONCLUSION AND SUGGESTION

We subjected our hypothetical model to SEM analysis. According to the overall goodness-of-fit analysis, our data indicates the following results: 1 Flow and PWB were strongly positively correlated, which is consistent with our literature review. Thus, this study also confirmed the correlation predicted by the hypothetical model. 2. Love affair experiences have a moderating effect on the relationship between flow and PWB.

To sum up, we suggest that in practical practice: college students should concentrate on solving the current problems and learning things, since concentration leads to peak experience, which generates flow, and causes high PWB.

Next, the undergraduates should avoid flow be influenced after ending the love affairs. Research found that compare with those who do not have love affair experiences and those in love, those who end the love affairs have lower correlation between flow and PWB. Although such love ending will cause the individual's psychological trauma, yet as Frankl (1986) held, suffering is an unique chance for the individual to decide his/her own corresponding attitude, and demonstrate courage and dignity in facing the suffering. Therefore, accepting suffering is an inevitable part in one's life. Wong (2003) even claimed that suffering is a teacher rather than an enemy, so accepting the fact that love relationship has come to an end will help one to recognize the meaning of life.

For further research, in this study, questionnaire survey was used, so what affects flow and PWB can only be deducted from literature or the researchers' generalization. Therefore, if interview can be used, we will be able to understand the reasons why love affair experiences has moderating effect between flow and PWB.

On the other side, the demographic variables may also influence PWB. For instance, in respect with gender, Garcia and Moradi(2013) adopted adolescents from Sweden and Iran as the research subject, and the results show that gender has significant difference in PWB, and levels of PWB tend to change over the life span. Autonomy and environmental mastery tend to increase with older age, whereas purpose in life and personal growth tend to be lower

among older adults (Ryff & Keyes, 1995; Ryff & Singer, 1998).Therefore, it is suggested the studies in the future include the background variables into the study to serve as the control variables.

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