

# The Development of Positive Emotion Regulation Strategies Scale for Children and Adolescents

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**Abstract**—The study was designed to develop a measurement of the positive emotion regulation questionnaire (PERQ) that assesses positive emotion regulation strategies through self-report. The 14 items developed for the surveying instrument of the study were based upon literatures regarding elements of positive regulation strategies. 319 elementary students (age ranging from 12 to 14) were recruited among three public elementary schools to survey on their use of positive emotion regulation strategies. Of 319 subjects, 20 invalid questionnaires yielded a response rate of 92%. The data collected was analyzed through methods such as item analysis, factor analysis, and structural equation models. In reference to the results from item analysis, the formal survey instrument was reduced to 11 items. A principal axis factor analysis with varimax was performed on responses, resulting in a 2-factor equation (savoring strategy and neutralizing strategy), which accounted for 55.5% of the total variance. Then, the two-factor structure of scale was also identified by structural equation models. Finally, the reliability coefficients of the two factors were Cronbach's  $\alpha$  .92 and .74. Gender difference was only found in savoring strategy. In conclusion, the positive emotion regulation strategies questionnaire offers a brief, internally consistent, and valid self-report measure for understanding the emotional regulation strategies of children that may be useful to researchers and applied professionals.

**Keywords**—Emotional regulation, emotional regulation strategies, scale, SEM.

## I. INTRODUCTION

It was widely believed that individuals engage in maintaining happy and positive emotions while tending to avoid negative ones, and positive emotions allow people to feel good rather than work on individuals' cognitive functions or social behaviors. To promote and maintain personal positive affects seems to be a native ability for human beings and such ability is not required to be regulated. However, it is indicated that there are individual differences on regulating positive emotions [1], which means individual would not respond to their positive experiences by the same way. In addition, positive emotions appear to be more complex and critical to us. Positive emotions was found to encourage creative thinking, efficient problem solving and facilitate physical health [2] [3], but the prolonging

in ecstasy states would also worsen one's mind and social function in clinical situations [4]. Besides repairing negative mood, positive emotions were useful to relieve or buffer the pressure of stressful events [5]. These results pointed out the significance of revealing related psychological mechanisms of positive emotion regulation. What strategies do people use to regulate positive emotions? Hence, to explore what strategies people use to regulate positive emotions and develop a instrument measuring strategies in managing positive emotions may help to unravel the multifaceted of how individual manage their positive emotions.

Savoring strategy refers to the strategy which people use to increase or protect their existing happy state [6][7][3]. For example, an individual keeping or prolonging their positive experiences through sharing their story with others [5] or purposely concentrate on one's pleasant experiences [8]. Hedonic contingency theory posits that people tends to choose actions which would maintain or improve their positive mood, and inspect cautiously the pleasure consequences of a particular action when they are in a positive subjective state rather than other moods [9]. Previous studies also offer evidences to support the hypotheses [6][7].

Neutralize strategy refers to the strategy which people use to calm down or switch their positive emotions to neutral states. It is pointed out that elevation in positive emotional response to stimuli is likely to increase the risks of mania [10] [11]. Neutralize strategy could mildly regulate the strength of positive emotions according to context or personal goals. Neutralize strategy is different from dampening strategy, which refers to the tendency to respond to positive mood states with fault finding or catastrophic strategies to reduce the intensity and duration of the positive mood state [1][12]. Neutralize strategy was associated with self control which involved inhibit predominate emotions and the ability of attention switching [13] rather than criticizing or devaluing oneself.

Based on the theory framework, the goal of the study is to develop an instrument which assesses regulation strategies of positive emotions.

## II. METHOD

### A. Sample

Participants composed of 319 12-14-years old senior high school students, attending two state schools in Taiwan. Both schools were selected to represent a broad mix of social class

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backgrounds. The sample consisted of 156 boys and 163 girls with a mean age of 13.4 years.

### III. MEASURES

#### A. Positive Emotion Regulation Strategies for Children

The PERSC was used to assess strategies children used to regulate after experiencing positive emotions. The PERSC 11-item self-report measurement with two subscales: savoring and naturalizing strategy. The answer categories for each of the items range from 1 [rarely] to 7[always].

### IV. RESULTS

#### A. Item Generation and Item Analysis

By reviewing recent literature, the authors built up two constructs and an item pool which included 13 items, and then, invited three experts in the fields of emotion psychology and education to examine the identical between items with constructs. Three children age from 10-12 were asked for implementing the preliminary scale and interviewed individually subsequently to examine the comprehensive of items. Then, the initial scale was formed after correcting.

After implementing the data collection from 319 subjects, item analysis was adopted to reduce the items pool. Item analysis included the t- test of difference on single item score between high (27%) and low grade group based on the subscales scores, and the correlation of each item score to the scale score and total correlation  $\alpha$  if item deleted. There are 11 items were kept after deleting items whose loading variance lower than .40 or correlation lower than .50 or total correlation  $\alpha$  increased after item deleted.

TABLE I  
ITEMS AND PA FACTOR LOADINGS

item	savoring	neutralizing
1.1	.76	.26
1.2	.71	.29
1.3	.67	.24
1.4	.79	.24
1.5	.81	.21
1.6	.76	.18
1.7	.76	.24
2.1	.24	.58
2.2	.11	.73
2.3	.29	.49
2.4	.20	.66
variance	37.75%	17.74%
Total variance		55.5%

Then, the responses were submitted to a principal axis factor analysis with varimax and the request command of extracting two factors (Table I). The resulting two factors had eigenvalues of 5.15 and 1.95, and together accounted for 55.50% of the variance. The seven savoring strategy items loaded more strongly on the first (loadings of .67 to .81) than

the second factor (loadings of .11 to .29); conversely, the four neutralizing strategy items loaded more strongly on the second (loadings of .49 to .73) than the first factor (loadings of .18 to .29).

#### B. Construct Validity

Confirmatory factor analysis (CFA) was adopted to examine the construct validity on the 11 items which set for two factors. Amos (18.0 version) was used for confirmatory factor analysis, and maximum likelihood (ML) was used for parameter estimation to test the factor validity of this scale.

The result showed a homogeneous factor with substantial factor loadings ranging from .59 to .84 (Fig. 1) and good fit: CMIN/df =2.03 <3, RMSEA= .07<.08 and CFI=.97 > .90 (Table II).

TABLE II  
EVALUATING THE GOODNESS OF FIT OF THE MODEL

Fit measures	sample	judgment
<b>Degree of freedom</b>	<i>Df</i> =43	
<b>Absolute fit measures</b>		
$\chi^2$ (Chi-square)	102.62(p<.05)	Not satisfied
CMIN/df	2.39(<3)	good fit
SRMR	.04(<.08)	good fit
RMSEA	.07(<.08)	good fit
AGFI	.91(>.09)	good fit
<b>Incremental fit measures</b>		
IFI	.97(>.09)	good fit
CFI	.97(>.09)	good fit
<b>Parsimonious fit measures</b>		
PRATIO	.78(>.07)	good fit
PNFI	.74(>.07)	good fit

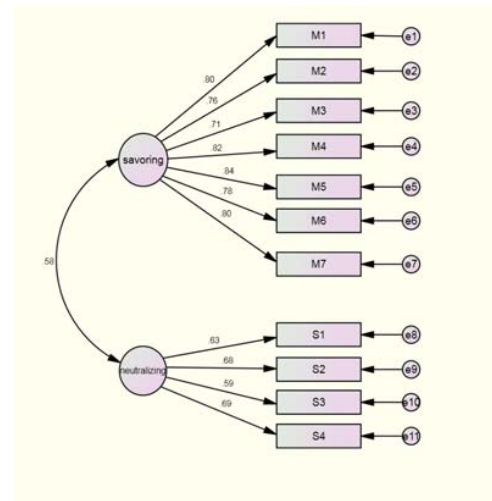


Fig. 1 Model of positive emotion strategies

#### C. Internal Consistency Reliability

The internal consistency measures of the tool were based on Cronbach's  $\alpha$ . The values of subscales were showed on Table III. The reliability of savoring strategy and neutralizing strategy

were .92 and .74 separately. In conclusion, the internal consistency reliabilities of the subscales were found to be accepted to satisfy.

TABLE III  
MEAN, STANDARD AND INTERNAL CONSISTENCY RELIABILITY FOR THE MEASURE

	savoring	neutralizing
<i>Cronbach's <math>\alpha</math></i>	.92	.74
Mean	34.71	16.29
Standard	11.11	6.06

#### D. Gender

One-way analysis of variance found significant gender differences were found for savoring strategy,  $f(1, 317) = 3.88, p < .05$ , but no significant differences on neutralizing strategy (Table IV). Girls reported used more savoring strategies than boys.

TABLE IV  
COMPARISON OF MEAN VALUES OF BOYS AND GIRLS

		M	SD	F	<i>p</i>
savoring	boys	33.47	11.46	3.88	.05*
	girls	35.91	10.66		
neutralizing	boys	15.79	6.18	2.09	.15
	girls	16.77	5.92		

\*  $p < .05$  \*\*  $p < .01$

#### V. DISCUSSION

In summary, the positive emotion regulation questionnaire appears to meet the psychometric standards for self report scales. It is internally consistent, yet savoring and neutralizing subscales are factorally identifiable as subcomponents of the overall measure. However, the study group was small, future studies with larger study groups should investigate predictive validity and criteria validity.

In conclusion, the positive emotion regulation strategies questionnaire offers a brief, internally consistent, and valid self-report measure for understanding the emotional regulation strategies of children that may be useful to researchers and applied professionals.

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