A STUDY OF PSYCHOLOGICAL FLOW AND RELATED VARIABLES

UN ESTUDIO SOBRE EL FLUJO PSICOLÓGICO Y SUS VARIABLES ASOCIADAS

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RESUMEN

El concepto de flujo psicológico sigue siendo difícil de definir, a pesar del progreso en el cuerpo de investigación que lo rodea. El objetivo de este estudio es examinar las relaciones entre el fenómeno del flujo y otras variables psicológicas relevantes, tales como: afecto positivo, bienestar psicológico, autoeficacia, interés intrínseco y concordancia. También exploramos los vínculos entre los constructos mencionados anteriormente y el disfrute y la absorción, que son componentes esenciales del flujo psicológico. Para ello, se llevaron a cabo análisis de regresión lineal simple y múltiple utilizando datos de una muestra

ABSTRACT

The concept of psychological flow remains difficult to define, despite progress in the body of research surrounding it. This study's objective is to examine the relationships among the flow phenomenon and other relevant psychological variables, such as: positive affect, psychological well-being, self-efficacy, intrinsic interest, and self-concordance. We also explore the links between the aforementioned constructs and enjoyment and absorption, which are essential components of psychological flow. To do so, simple and multiple linear regression analyses were

conveniente de participantes. Como instrumentos, empleamos nuestra versión de las subescalas de flujo (Rodríguez, Schaufeli, Salanova y Cifre, 2008), el Índice de autoconocuencia y autoeficacia (Sansinenea, Gil de Montes, Agirrezabal, Larrañaga, Ortiz, Valencia, & Fuster, 2008), y las versiones en español de: la Escala de Estado de Flujo (Jackson & Marsh, 1996), las Escalas de Bienestar Psicológico (Ryff, 1989) y las escalas PANAS (Watson, Clark & Tellegen, 1988). Los resultados muestran que el afecto general y semanal positivo, el bienestar psicológico, la autoeficacia, el interés intrínseco y la concordancia pueden predecir partes de la variación en el flujo psicológico, el disfrute y la absorción. Las implicaciones de estos resultados son importantes para definir este constructo.

PALABRAS CLAVE

Flujo psicológico, experiencias óptimas, afecto positivo, bienestar psicológico, autoeficacia.

carried out using data from a convenience sample of participants. As instruments, we employed our version of the Flow Sub-scales (Rodríguez, Schaufeli, Salanova, & Cifre, 2008), the Self-concordance and Self-efficacy Index (Sansinenea, Gil de Montes, Agirrezabal, Larrañaga, Ortiz, Valencia, & Fuster, 2008), and the Spanish versions of the: Flow State Scale (Jackson & Marsh, 1996), Psychological Well-being Scales (Ryff, 1989), and the PANAS scales (Watson, Clark, & Tellegen, 1988). The results show that general and weekly positive affect, psychological well-being, self-efficacy, intrinsic interest, and self-concordance can predict portions of variance in psychological flow, enjoyment, and absorption. The implications of these results are important to defining this construct.

KEYWORDS

psychological flow, optimal experiences, positive affect, psychological well-being, self-efficacy.

INTRODUCTION

The construct of psychological flow was defined and articulated within the framework of positive psychology by Csikszentmihalyi (1975), and its validity remains clear today. However, not much research has focused on studying it (Asakawa, 2004, 2009; Asakawa & Yana, 2010; Bakker, 2003, 2005; Chen, 2006; Collins, Sarkisian, & Winner, 2008; Csikszentmihalyi, 1975, 1990, 1990/2009a; Delle Fave, Massimini, & Bassi, 2011; Rodríguez, 2009; Rodríguez, Cifre, & Salanova, 2004, 2008; Rodríguez, Cifre, Salanova, & Aborg, 2008; Rogatko, 2009; Smolej, & Avsec, 2007). It is perhaps for that reason that this psychological phenomenon has

still been neither sufficiently defined nor articulated. In Spain, however, some relevant studies have been conducted on both the nature and structure of flow (López Torres, 2006; Rodríguez, 2009; Rodríguez, Cifre, & Salanova, 2004, 2008; Rodríguez, Cifre, Salanova, & Aborg, 2008; Rodríguez, Schaufeli, Salanova, & Cifre, 2008).

Csikszentmihalyi (1990) explains a psychological flow state in terms of functioning, asserting that this construct is mainly an experience in which one's abilities are in balance with the challenges posed by executing a task with clear objectives and norms, and feedback to guide execution. Furthermore, said task must require very intense concentration, in turn altering one's perception of time, and even state of consciousness. The whole process is so enjoyable, meanwhile, that one wants to repeat it even when it holds no external rewards.

At first, all studies of optimal experiences shared the common objective of determining and articulating complex, abstract theories of intrinsic motivation. Nowadays, though, interest in psychological flow "per se" have gone beyond those objectives (Rodríguez, Schaufeli, Salanova, & Cifre, 2008; Salanova, Martínez, Cifre, & Schaufeli, 2005; Salanova & Schaufeli, 2000). Research has also begun to examine the distinctive nature of the phenomenon (Bakker, 2003, 2005; Chen, 2006; Chen, Wigand, & Nilan, 1999; Csikszentmihalyi, 1990, 1990/2009a; Demerouti, 2006; Finnerann & Zhang, 2003; Kawabata & Mallett, 2011; Rodríguez, Cifre, & Salanova, 2004, 2008; Rodríguez, Cifre, Salanova, & Aborg, 2008; Rodríguez, Schaufeli, Salanova, & Cifre, 2008), as well as its relation to other constructs from different spheres. In the workplace, for example, researchers have studied the relationships connecting psychological flow, *Burnout,* and *Engagement* (Del Líbano, Rodríguez, Llorens, Schaufeli, & Salanova, 2006; Rodríguez, Cifre, & Salanova, 2008; Salanova, Bakker, & Llorens, 2006).

The psychological flow models utilized in developing this study were those by Salanova and her team. Specifically, we ascribed to the Bidimensional Model of Flow (Rodríguez, 2009; Rodríguez, Cifre, Salanova, & Aborg, 2008) and the Extended Channel Model (Rodríguez, 2009, Salanova, Bakker, & Llorens, 2006).

In the research mentioned above by Salanova's research group, the authors began by testing the structure of psychological flow, arriving at the conclusion that flow experience's structure includes: one factor acting as an antecedent stimulus, intrinsic interest in this case, while enjoyment and absorption act as flow consequences, as well as its true component factors. This validates the Bidimensional Model (Rodríguez, 2009; Rodríguez, Cifre, & Salanova, 2008; Rodríguez, Cifre, Salanova, & Aborg, 2008). In other studies, Salanova and her

research team (Rodríguez, 2009; Salanova, Bakker, & Llorens, 2006), based on prior research (Bassi, Steca, Delle Fave, & Caprara, 2007), tested an extension of the classic Channel Model (Csikszentmihalyi, 1975; Csikszentmihalyi & Csikszentmihalyi, 1988/1998; Csikszentmihalyi, 1990/2009a, 2009b), introducing self-efficacy as an additional predictor variable of the challenges-skills combination. This new model, which includes self-efficacy as a flow experience antecedent, was termed the Extended Channel Model by its authors (Rodríguez, 2009; Salanova, Bakker, & Llorens, 2006)

According to the studies cited above, the relationships between psychological flow, intrinsic interest, self-efficacy, absorption, and enjoyment are clear and bear important theoretical implications. Additionally, this study addresses the connections between flow and other relevant, psychological constructs whose link to this phenomenon turned out to be of interest.

First of all, it would be of interest to determine the link between psychological flow and affect (Asakawa, 2004, 2009; Asakawa & Yana, 2010; Collins, Sarkisian, & Winner, 2008; Rogatko, 2009; Smolej & Avsec, 2007), as well as the interaction between psychological well-being and flow (Asakawa, 2004, 2009; Asakawa & Yana, 2010; Csikszentmihalyi, 1988/1998, 1990/2009a, 1997/2007, 2003; Nakamura & Csikszentmihalyi, 2002, 2008), the implications of psychological flow for motivation (Bassi, & Delle Fave, 2011; Demerouti, 2006; Guay & Ratelle, 2008; Mills & Fullagar, 2008), and last, the links between self-concordance, self-efficacy, and psychological flow (Rodríguez, 2009; Salanova, Bakker, & Llorens, 2006).

In light of the above, this study aims to identify which of the chosen variables exhibit more or stronger connections to the construct of psychological flow.

METHOD

The present study has an ex post facto design and the general objective of exploring the relations among flow and other related psychological constructs, such as: general positive affect, weekly positive affect, psychological well-being, self-efficacy, self-concordance, absorption, enjoyment, and intrinsic interest.

Within this broad objective, 3 more concrete objectives were proposed:

1. To study the relationships between the psychological flow phenomenon and the following related variables: general positive affect, weekly positive

affect, psychological well-being, self-efficacy, self-concordance, absorption, enjoyment, and intrinsic interest, together as well as individually.
2. To explore the relationships among absorption (a component of flow) and general positive affect, weekly positive affect, psychological well-being, self-efficacy, self-concordance, and intrinsic interest, together and individually.
3. To examine the connections between enjoyment (a component of flow) and general positive affect, weekly positive affect, psychological well-being, self-efficacy, self-concordance, and intrinsic interest, together as well as separately.

PARTICIPANTS

The study's sample consists of 294 subjects, of whom 116 are men and 178 women; they range in age from 17 to 76 years-old, the mean age being 39. All participants reside in the cities of Madrid or Granada. 59.9% of all subjects are actively employed at different health centers and 30.1% are students. Some are studying Occupational Therapy (40%) and others belong to the Adult University (36.5%).

A Chi-squared test was performed to test the goodness of fit hypothesis according to the variable sex. The analysis conveys that the gender variable is not normally distributed (χ^2=13.075; p=.000).

INSTRUMENTS

Flow State Scale (Jackson and Marsh, 1996).

We used the Spanish language translation of Jackson and Marsh's (1996) Flow State Scale-FSS-2 by García-Calvo, Jiménez, Santos-Rosa, Reina, and Cervelló (2008).

This version of the instrument consists of 36 items answered on a Likert-type scale ranging from 1 (totally disagree) to 10 (totally agree). Its validity and internal consistency are satisfactory. It is made up of one global factor (flow state) and nine second-order factors (four items in each factor) referring to each of the dimensions comprising flow state. Its Cronbach's alpha values are over .70 and in many cases over .80, leading us to believe the Spanish adaption of the Flow State Scale is highly reliable and that measures of its factors will be consistent.

Flow Subscales (Rodríguez, Schaufeli, Salanova & Cifre, 2008).

We will now present our validation of the Flow Subscales by Rodríguez, Schaufeli, Salanova & Cifre (2008), one of two instruments utilized in this research to measure flow.

For the purposes of this study, the main problem with the original questionnaire and the reason it needed to be re-validated is that it was originally conceived of to assess flow experience while carrying out a well-defined activity, like using information and communication technology (ICT). Since the present research objective is concerned with flow in general, not circumscribed to any specific task, we had to modify the statement with instructions for completing the initial questionnaire. Here, participants are asked about "their favorite activity" rather than "working with ICT," as in the original scale. In both cases, the measurement scale was Likert-type, spanning from 0 (Not at all/Never) to 6 (Always, Everyday).

We also modified the wording of items to substitute references to working with "ICT," as in the original questionnaire, to ask participants about their "favorite activity" in the present scale.

Considering the above, it was necessary to apply factor analysis to this new version of the questionnaire. Table 1 below conveys the explained variance (Table 1) and provides all eigenvalues, along with the percentage of variance explained by each factor. In essence, we have as many eigenvalues as variables to deal with. Applying the Kaiser criterion, 3 factors have been retained, together explaining 70.7% of the total variance.

A close reading of the factors shows that: factor 1's eigenvalue is 5.905; factor 2's is 1.041; and last, factor 3's is .831.

Finally, three factors were obtained using Promax rotation and Kaiser: absorption, intrinsic interest, and enjoyment. Absorption loaded on items 4, 5, 6, 7, and 8, intrinsic interest on 9, 10, and 11 and like the last factor, enjoyment loaded on three items: 1, 2, and 3.

To conclude, we now present the *analysis of internal consistency* of the version of the questionnaire this study used:

Due to this research's specific nature and objectives, it was necessary to change both the wording of the instrument's instructions and its items, as described

above. Therefore, we had to establish the internal consistency of this particular scale. To do so, we computed Cronbach's alpha for each of the questionnaire's three factors, yielding satisfactory results. In every case, Cronbach's alpha fell above .70, as shown below.

1. Enjoyment Factor: (α = .73).
2. Absorption Factor: (α = .87).
3. Intrinsic Interest Factor: (α = .83).

Table 1. Percentages of Explained Variance.

Total Explained Variance

Com-ponent		Initial Eigenvalues			Sum of the squared factor loadings in factor extraction			Sum of the squared factor loadings in rotation[a]
		Total	% of variance	% accumulated	Total	% of variance	% accumulated	Total
dimension0	1	5.905	53.678	53.678	5.905	53.678	53.678	4.851
	2	1.041	9.468	63.145	1.041	9.468	63.145	4.744
	3	.831	7.555	70.700	.831	7.555	70.700	4.249
	4	.671	6.100	76.801				
	5	.604	5.487	82.288				
	6	.489	4.446	86.733				
	7	.377	3.430	90.163				
	8	.337	3.062	93.224				
	9	.288	2.614	95.838				
	10	.237	2.155	97.993				
	11	.221	2.007	10.000				

Method of Extraction: Principal Components Analysis.

a. When components are correlated, the sum of their squared factor loadings cannot be added to get total variance.

Psychological Well-being Scales (Ryff, 1989)

This Scale was first developed by Ryff (1989). The Spanish version utilized here (Díaz, Rodríguez-Carvajal, Blanco, Moreno-Jiménez, Gallardo, Valle, & van Dierendonck, 2006) is made up of 29 items whose response scale ranges from: 1 (totally disagree) to 6 (totally agree).

It has acceptable goodness of fit to the proposed model of six factors and one second-order factor, and holds adequate levels of internal consistency (Cronbach's alpha from .84 to .70).

PANAS Scales (Watson, Clark, and Tellegen, 1988)

The PANAS Scales used in this study to measure positive and negative affect are the result of a Spanish validation by Sandín and his research team (1999) of the original, North American version (Watson, Clark, & Tellegen, 1988). This instrument, like the American original, measures specific temperament and mood state variables, therefore including two distinct scales.

This questionnaire has magnificent construct validity, which was tested through confirmatory factor analyses demonstrating its bidimensionality. Factor analyses performed separately in men and women suggest the PA and NA structure is the same in both types of population. The reliability index was also found to be acceptable; it was measured by means of Cronbach's alpha, yielding a result of .86 on the negative scale and .84 on the positive scale.

Self-concordance and Self-efficacy Index (Sansinenea, Gil de Montes, Agirrezabal, Larrañaga, Ortiz, Valencia, and Fuster, 2008)

In the present research, to measure participants' belief in their self-efficacy – feeling capable of achieving the proposed objectives – and to obtain an index of self-concordance – feeling that the objectives at hand are coherent with one´s own values and interests – we used questions elaborated by Sansinenea et al. (2008) in research they conducted that same year. However, the questions were reformulated to meet this study's aims. In the present study, as in Sansinenea's, the intention was to establish relationships between motivations and these two constructs. The only difference is that here, the idea was not to elicit personal objectives at the time participants filled out the questionnaire, but rather to elicit the activities that would lead them toward the sorts of optimal experiences studied. Hence, measures of self-efficacy, different types of motivation, and a general index of self-concordance were all taken.

The questions reformulated by our group address the special circumstances involved in this study and helped the participant identify a favorite activity. In that way, it differed from the original questionnaire where the subject was asked to think of three personal objectives.

The proposed questions benefit from having ample scientific support, as corroborated by their satisfactory reliability, a Cronbach's alpha of .60, and having been independently translated multiple times (Spanish-English, English-Spanish).

As on the original questionnaire, these items are answered on a 7-point, Likert-type scale (1= not at all, 7= totally).

DATA ANALYSIS AND RESULTS

The present research, in order to achieve its objectives, carried out linear regression analyses, both simple and multiple, by means of the PASW.18 statistical program.

Regarding our first concrete objective, it was found that according to various simple linear regression analyses, the following independent variables predict variance in the dependent variable, psychological flow. Here are their proportions, as indicated by the R^2 statistic, listed from greatest to least: self-efficacy: .483; enjoyment: .435; absorption: .427; psychological well-being: .427; general positive affect: .398; intrinsic interest: .324; weekly positive affect: .270; and self-concordance: .261.

Next came the first multiple linear regression analysis, where the variables absorption and enjoyment were excluded because they are considered the core of flow experience (Rodríguez, 2009; Rodríguez, Cifre, Salanova, & Aborg, 2008). In this section, we must explore what variables really constitute flow antecedents. Since the aforementioned variables – absorption and enjoyment – are components of the flow construct, according to the theses of Rodríguez (2009) and Rodríguez, Cifre, Salanova, and Aborg (2008), they were excluded.

Mainly R, R^2, and adjusted R^2 values were taken into account in determining goodness of fit. As Table 2 illustrates, those values were found to be large. The model explains 66.2% of variance in flow, taking as regression variables: self-efficacy, well-being, intrinsic interest, and general positive affect.

This analysis yielded the following regression function:

$$\text{FLOW} = -1.862 + .484 \cdot \text{Self-efficacy} + .146 \cdot \text{Well-being} + .329 \cdot \text{Intrinsic Interest} + .046 \cdot \text{General Positive Affect}$$

Next, using the step-wise method, we were able to determine the exact variation in R^2 with each entry. That way, we observed that when well-being was added to self-efficacy, R^2 rose from 0.48 to 0.60. This represents a noticeable shift in the value of R^2 and reinforces the idea that the two variables together form a better linear model than either of the two single-variable models. When the remaining variables are added in (intrinsic interest and general positive affect), R^2 improves, though not as much.

Table 2. Model Summary. Regression Analysis of Flow FSS (VD).

R	R^2	Adjusted R^2	Change Statistics					Durbin-Watson
			Change in R^2	Change in F	df1	df2	Sig. Change in F	
.695[a]	.483	.481	.483	273.019	1	292	.000	
.775[b]	.601	.598	.117	85.618	1	291	.000	
.800[c]	.639	.635	.039	30.957	1	290	.000	
.814[d]	.662	.657	.023	19.408	1	289	.000	1.999

a. Predictor Variables: (Constant), Self-efficacy
b. Predictor Variables: (Constant), Self-efficacy, Well-being
c. Predictor Variables: (Constant), Self-efficacy, Well-being, Intrinsic Interest
d. Predictor Variables: (Constant), Self-efficacy, Well-being, Intrinsic Interest, General Positive Affect
e. Dependent Variable: Flow FSS

With respect to the second objective, as before, simple linear regression analyses were carried out between the dependent variable, absorption, and the selected variables mentioned above. The results of those analyses are listed below from greatest to least: intrinsic interest: .416; general positive affect: .270; self-efficacy: .248; weekly positive affect: .183; psychological well-being: .178; and self-concordance: .161.

As previously, multiple linear regression analysis was applied after the simple regression analysis. Table 3 shows the values of R, R^2, and adjusted R^2 are high. The model explains 49.9% of variance in absorption utilizing the following regression variables: intrinsic interest, general positive affect, and self-efficacy. Employing the step-wise method by adding variables into the model sequentially, we observe that R^2 improves from .416 to .486 when general positive affect is added to intrinsic interest, and again to .499 when self-efficacy is included.

This analysis yielded the following linear regression equation:

$$ABSORPTION = .305 + .469 \cdot Intrinsic\ Interest + .033 \cdot General\ Positive\ Affect + .118 \cdot Self\text{-}efficacy + \varepsilon$$

Moving on to discuss the study's third objective, we again begin by carrying out a simple linear regression analysis of the different independent variables that are part of meeting that objective, and the dependent variable, in this case enjoyment. The R^2 statistic results appear below: intrinsic interest: .366; self-efficacy: .304; general positive affect: .261; psychological well-being: .223; weekly positive affect: .185; self-concordance: .111.

Table 3. Model Summary. Regression Analysis of Absorption (VD).

R	R^2	Adjusted R^2	Change Statistics					Durbin-Watson
			Change in R^2	Change in F	df1	df2	Sig. Change in F	
.645[a]	.416	.414	.416	208.285	1	292	.000	
.697[b]	.486	.482	.069	39.291	1	291	.000	
.706[c]	.499	.494	.013	7.724	1	290	.006	1.670

a. Predictor Variables: (Constant), Intrinsic Interest
b. Predictor Variables: (Constant), Intrinsic Interest, General Positive Affect
c. Predictor Variables: (Constant), Intrinsic Interest, General Positive Affect, Self-efficacy
d. Dependent Variable: Absorption

Once more, following simple linear regression analysis, the results of multiple linear regression analysis were computed. They again reveal large values of R, R^2, and adjusted R^2. The model evidently (Table 4) explains 48.2% of variance in enjoyment, using the following regression variables in the analyses: intrinsic interest, self-efficacy, and general positive affect. As before, these analyses also tested R^2 improvement as variables were added into the model; from .366 to .452 when self-efficacy was added to intrinsic interest, and from there up to .482 as general positive affect was incorporated. We again see that the study´s three variables together establish a better linear model than any of the three models employing only one of the three variables.

Table 4. Model Summary. Regression Analysis. Enjoyment (VD).

R	R^2	Adjusted R^2	Change Statistics					Durbin-Watson
			Change in R^2	Change in F	df1	df2	Sig. Change in F	
.605[a]	.366	.364	.366	168.782	1	292	.000	

.672[b]	.452	.448	.086	45.436	1	291	.000	
.694[c]	.482	.476	.030	16.723	1	290	.000	2.020

a. Predictor Variables: (Constant), Intrinsic Interest
b. Predictor Variables: (Constant), Intrinsic Interest, Self-efficacy
c. Predictor Variables: (Constant), Intrinsic Interest, Self-efficacy, General Positive Affect
d. Dependent Variable: Enjoyment

Below is the equation of the plane obtained by least squares through the multiple linear regression analyses described:

$$\text{ENJOYMENT} = .852 + .355 \cdot \text{Intrinsic Interest} + .188 \cdot \text{Self-efficacy} + .027 \cdot \text{General Positive Affect} + \varepsilon$$

CONCLUSIONS AND DISCUSSION

As stated above, research studies on flow experience first emerged in the 1970's with the work of Csikszentmihalyi. In the last 20 years, there have been increasingly many studies on the subject, opening up new research directions, perhaps the most important one being flow consequences in the form of increased quality of life and development of human potential (Asakawa, 2009; Nakamura & Csikszentmihalyi, 2002, 2008). Along the lines of that argument, Asakawa (2009) posits that the existing scientific literature on this topic suggests the flow phenomenon has a tremendous potential to foster important aspects of personality.

Reviewing the specialized literature, one finds that several studies´ results demonstrate that achieving optimal experiences is positively associated with psychological resistance (Schmidt, 2003), a sense of plentitude and life satisfaction (Asakawa, 2004, 2009; Asakawa & Yana, 2010; Bryce & Haworth, 2002; Clarke & Haworth, 1994; Han, 1988; Ishimura & Kodama, 2006; Peterson, Park, & Seligman, 2005), and success in academic work (Carli, Delle Fave, & Massimini 1988; Csikszentmihalyi, Rathunde, & Whalen, 1993; Heine, 1996; Nakamura, 1998).

We also found studies relating the construct of flow to self-esteem, life satisfaction, and successful coping (Adlai-Gail, 1994; Csikszentmihalyi, 1990; Han, 1988; Peterson, Park, & Seligman, 2005; Wells, 1998), and others associating it with positive affect in youth populations (Asakawa, 2004; Csikszentmihalyi, 1988/1998, 1990; Csikszentmihalyi & LeFevre, 1989; Csikszentmihalyi & Hunter, 2003). Flow has additionally been studied in elderly populations (Han, 1988; Voelkl, 1990). Han´s research (1988), for example, was conducted in a sample of elderly Korean

immigrants, while Voelkl's (1990) used a sample of retirement home residents. Those studies demonstrate that elderly people, too, are capable of experiencing flow and that flow is positively related to feelings of happiness in a population that has lived long lives. Last, we uncovered a study (Ishimura & Kodama, 2006) carried out in non-Western participants that, like in the present study, utilized Ryff's psychological well-being scale, this time in a sample of Japanese college students. The authors show that flow is positively related to several aspects of psychological well-being.

Following that line of thinking, Rogatko (2009) and Mundell (2000) were also able to establish positive, significant relationships between flow and general positive affect. In fact, they did so using exactly the same questionnaires as this study (PANAS and the Flow State Scale). These positive associations among the same variables have also been observed in other, similar studies conducted recently (Asakawa, 2004, 2009, Asakawa & Yana, 2010; Collins, Sarkisian, & Winner, 2008; Smolej & Avsec, 2007). These results are all consistent with the hypothesis that the concept of flow has an emotional nature.

In addition to the above findings, other eminent authors like Seligman and Csikszentmihalyi (2000) and Massimini and Delle Fave (2000) believe psychological flow can be considered a fundamental, dynamic factor that decidedly influences the way people feel, think, and act both in the present and in the future. People choose or select "the behaviors that make them feel fully alive, competent, and creative" (Seligman & Csikszentmihalyi, 2000, p. 9).

In light of the above, we can conclude that many studies, like the one at hand, have examined the associations between flow, psychological well-being, and affect. Nevertheless, the other variables addressed by the present research (self-efficacy, self-concordance, absorption, enjoyment, and intrinsic interest) had not yet been covered in the body of literature. That is, of course, excluding the work of Salanova and her research team (Rodríguez, 2009; Salanova, Bakker, & Llorens, 2006) and certain others (Bassi, Steca, Delle Fave, & Caprara, 2007). While those authors did analyze said variables, the thrust of their research was not to study associations and predictors among them, but rather to address the structural relationships of the psychological flow construct.

On the subject of general positive affect, general well-being, and how they relate to flow, we have established that they have been present at least obliquely in practically every study of optimal experiences. That is due to the emotional nature of the concept of flow. However, not many studies have been sufficiently adept at articulating or describing the structure of the relations among these highly relevant

constructs. This may be because, really, we were not able to determine those constructs' relational structure by establishing causality between them. It remains unclear whether flow induces general positive affect or psychological well-being, or if the opposite is true. What has been more than sufficiently demonstrated, though, is that they are highly correlated (Asakawa, 2004, 2009; Asakawa & Yana, 2010; Collins, Sarkisian, & Winner, 2008; Fernández Marín, Pérez Nieto, & González Ordi 2010; Mesurado, 2009; Mundell, 2000; Rogatko, 2009; Smolej & Avsec, 2007), to which this study's results can attest.

Of the studies we are familiar with in this area, linear regression analyses have argued precisely the opposite; affect and psychological well-being function as dependent variables (Asakawa, 2004, 2009, Asakawa & Yana, 2010; Chen, 2006; Collins, Sarkisian, & Winner, 2008; Csikszentmihalyi, 1988/1998, 2007; Smolej & Avsec, 2007). Thus, one of this study's contributions lies in bringing forth a new way of analyzing this research question. While this methodological design does not entail causation, it is noteworthy for its new approach and marked difference from past research.

First shifting our attention to the simple linear regressions applied in service of our first objective, overall, very high values were reported. Other studies with this theoretical bent, like Rogatko´s (2009), have yielded similar results, though their numbers were somewhat lower than ours in terms of the relationship between affect and flow. The conclusions of that study are especially relevant because they measured flow and affect using the same scales as the current study.

As for psychological well-being, it seems to be a very strong predictor of flow in this study. As described above, numerous studies from the body of specialized literature have reported positive links between those two variables (Asakawa, 2004, 2009; Asakawa & Yana, 2010; Collins, Sarkisian, & Winner, 2008; Rogatko, 2009; Smolej & Avsec, 2007).

The first multiple linear regression analysis carried out in the present research found that self-efficacy, psychological well-being, intrinsic interest, and general positive affect explain a portion of variance in flow (Table 2). Asakawa (2004, 2009), Asakawa and Yana (2010), Collins, Sarkisian, and Winner (2008), Rogatko (2009), and Smolej and Avsec (2007), among others, have also reported positive results in that direction – relationships and predictions between flow experience, positive affect, and psychological well-being. In one case, they even reported (Smolej & Avsec, 2007) that different aspects of flow determined a higher proportion of variance in well-being's emotional components than the more cognitive components of well-being did. They concluded, therefore, that positive

emotions can be better predicted by flow factors than by cognitive judgments, as long as one finds him or herself generally satisfied.

Regarding the second, concrete objective of this study, described above, we first performed bivariate simple linear regression analyses, establishing the absorption factor as the dependent variable. Said analyses yielded rather high results, intrinsic interest being the highest and self-concordance the lowest. This finding is, again, not surprising given that intrinsic interest, though considered a flow experience antecedent, is also a component of it. Self-concordance, on the other hand, seems to be the variable least closely related to flow. That being said, it was never the intention to carry out such an analysis.

As for the results of the multiple linear regression analyses proposed in fulfillment of the second objective (Table 3), the model also explains a portion of variance in absorption.

From what we have seen thus far, one could surmise that the factors to best predict absorption as a component of flow would be: intrinsic interest, general positive affect, and self-efficacy, according to the findings of both simple and multiple linear regression analyses. Given the results obtained, we may conclude that to successfully concentrate in a flow experience, the most important thing is to be motivated, in a good mood, and to believe oneself capable of achieving the task, in that order. These results reinforce the findings of other literature from this field (Agarwal & Karahanna, 2000; Finneran & Zhang, 2003; Ghani, Supnick, & Rooney, 1991).

We can conduct no further comparisons with previous studies because in our literature review, no such analyses were found. Therefore, we hope these serve as a guide for future research.

As for the third proposed objective, once again, very high results were found, intrinsic interest being the highest and self-concordance the lowest. This coincides exactly with the highest and lowest results of earlier analyses.

The results of the multiple regression analysis applied in this case also had very interesting values (Table 4). The model explains a similar portion of the variance in enjoyment as in absorption. It is not at all surprising that such similar results were reported, and they may even support the hypothesis of Salanova's team (Rodríguez, 2009; Rodríguez, Cifre, Salanova, & Aborg, 2008; Rodríguez, Schaufeli, Salanova, & Cifre, 2008), which we know posits that absorption and enjoyment are the two factors that comprise the construct of psychological flow.

In view of the results obtained from both simple and multiple regression analysis, we have determined that the factors to best predict enjoyment as a component of flow are the following, in order: intrinsic interest, self-efficacy, and general positive affect; psychological well-being falls in fourth place. A slight variation was found from prior analyses where absorption operated as a dependent variable in that positive affect was found to be the second best factor at predicting flow, and self-efficacy the third best. Clearly, the reverse occurred in this case; it is, however, nothing more than a slight variation from what turned out to be very similar data. This favors the hypothesis that those two variables comprise flow experience (Rodríguez, 2009; Rodríguez, Cifre, Salanova, & Aborg, 2008; Rodríguez, Schaufeli, Salanova, & Cifre, 2008).

Also note that as far as we know, no prior literature considered this type of analysis.

The present study's results are not without limitations. The first one we found this research to have is paradoxically the same thing that makes it most valuable: its generality. It gives us a broad view of what constitutes flow experience and its relationship to other related constructs. Yet precisely because of the work's general quality, certain limitations arise in addressing some highly relevant questions. Consider the difficulty we found in studying the activities that unleash flow in this descriptive study. We might ask ourselves: what makes these activities particularly susceptible to eliciting optimal experiences? Though we already know the characteristics that, according to Csikszentmihalyi (1990/2009a), an activity should have in order to bring about flow, we were not able to determine those activities' specific characteristics through this research. It is possible this question is irrelevant to us because our focus was on more general objectives. In future research, however, we believe it would be apt to continue studying in greater detail the properties of tasks that can originate flow.

On another note, some authors have criticized the measurement of psychological flow using the type of psychometric scales employed to date in flow research. They argue the results they provide may lack quality, explaining that participants may not be able to explain phenomenological perceptions well with words (Massimini, Csikszentmihalyi, & Carli, 1987). Other researchers (Chen, Wigand, & Nilan, 2000), however, have doubtlessly utilized this type of questionnaire in their studies, eliciting rigorous, retrospective descriptions of flow state. Over time, other authors (Nakamura & Csikszentmihalyi, 2002) have tried to weigh in on this controversy, reporting that the questionnaires are good instruments for measuring flow when that is their sole objective, to measure that experience in context, not to identify or describe the different dimensions of flow.

Perhaps in light of these considerations, it can be understood that the questionnaires' risk lies in obtaining measures of "experience after-the-fact," which could give the assessment a certain bias, mainly due to participants' limited experience measuring phenomenological variables, and also probably an implicit memory factor in the measurement. However, those limitations are shared by practically every questionnaire that assesses psychological constructs; so in the present study, we opted to set them aside.

With an eye to future research, we figure that having already studied flow antecedents and component dimensions, the consequences remained to be examined, so as to establish a much more complete, functional model of optimal experience. Subsequent studies, then, must delve further still into psychological flow to complete the model and establish functional relationships among flow's antecedents and consequences.

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