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Serious Leisure, Recreation Specialization, and Flow Experience among Heavyweight Motorcyclists

Ming-Kuei Chien[1], Te-Ming Chang[2]

[1]*Tzu Hui Institute of Technology, Department of Leisure, Recreation and Tourism Management, Ping Tung, Taiwan*
[2]*Tzu Hui Institute of Technology, Department of Food and Beverage Management, Ping Tung , Taiwan*
Corresponding author: Ming-Kuei Chien[1]

ABSTRACT : This study explores heavyweight motorcyclists' serious leisure, recreation specialization, and flow experience. A questionnaire was developed and administered to Taiwanese heavyweight motorcyclists recruited via convenience sampling at specific locations. Descriptive statistics were analyzed using SPSS software and confirmatory factor analysis, and the relationships between the constructs were tested using LISREL 8.7 software. This study provides recommendations to participants, business owners, and government authorities. Furthermore, the results also facilitate future research on sports and tourism.

The sample of this study consisted of Taiwanese heavyweight motorcyclists, who were recruited via purposive sampling and were administered a questionnaire. The descriptive statistics of the data were analyzed using SPSS software, confirmatory factor analysis and the relationships between the constructs were tested using LISREL 8.7 software The results provide a reference to the local tourism industry, while the study framework can provide references to other future studies in this field.

Keywords: experiential value, leisure involvement, leisure satisfaction, behavioral intention

I.   INTRODUCTION

1. Background and motivations

The recent implementation of the five-day workweek in Taiwan has given citizens more free time to engage in leisure and sports activities that improve their quality of life and promote healthy living. These activities have become central to the lives of Taiwanese citizens. After becoming a member of the World Trade Organization in 2002, the Taiwanese government reintroduced the import and application of general and large-size heavyweight motorcycles with an engine displacement of over 150 c.c. In 2012, the government announced large-size heavyweight motorcycles with a displacement of over 250 c.c. would be subject to the same traffic codes as cars (Wu, 2020). Following the reimport of heavyweight motorcycles, several trends have indicated that heavyweight motorcycling is now a popular form of adventurous leisure and recreation and is progressively becoming a serious leisure activity (Chung, 2013). Chiang (2007) observed that heavyweight motorcycling in Taiwan is still nascent: most people participate as club or organization members and travel together after meeting through the internet. The unique attributes of heavyweight motorcycles are undoubtedly the sport's main attraction. Taiwan's magnificent scenery and complex geographical environment are perfect for traveling by motorcycle, distinguishing it from other modes of transportation. Therefore, it is unsurprising that increasing numbers of people, regardless of sex and age, are engaging in heavyweight motorcycling as a form of leisure (Hsieh, 2009). Chang and Pan (2009) reported that heavyweight motorcyclists improve their recreation professionalism when they perceive that they are engaging in serious leisure and consequently display stronger behavioral engagement with sports and travel.

Stebbins (1982) defined serious leisure as systematic, planned, continuous, and prolonged participation in an activity by participants who are amateurs, hobbyists, and career volunteers. The participants are attracted to and continuously engage in these activities due to their complex, rich, engaging, and challenging characteristics. Participants engage in activities relevant to their careers, thereby achieving leisure and learning and displaying specialized skills, knowledge, and experiences. This also allows them to have exciting and fulfilling experiences. Stebbins identified six qualities of serious leisure—perseverance, a career in the making, personal effort, durable benefits, unique ethos, and strong identity. Chen (2011) defined serious leisure as the

systematic and long-term participation in mountaineering activities among amateurs, hobbyists, and career volunteers. The participants focus on these activities as if they were their careers and obtain and exhibit special skills, knowledge, and experiences that make them feel fulfilled. The author identified the qualities of serious leisure as perseverance, a planned leisure career, persistent personal benefit, significant personal effort, unique ethos, and a strong identification with the activity. Chen (2017) noted that the growth in various leisure activities can be attributed to Taiwanese citizens' increasing emphasis on the value of leisure activities. These activities have evolved from healthy ways to pass the time to in-depth leisure activities that require professional knowledge and skills. Many studies have demonstrated that leisure activities promote mental and physical health, eliminate fatigue, and alleviate stress. Furthermore, they influence people's sense of achievement and improve their interpersonal interactions.

Bryan (1977) defined recreation specialization as a continuous process and behavior that entails general to specific activities from which users obtain equipment and skills in response to their preferences in sport and activity settings. Due to the growing popularity of leisure and health concepts, some participants remain unfulfilled by merely participating in recreational activities. This leads to recreation specialization, essential in serious leisure and place identity. Indeed, serious leisure influences place identity through recreation specialization (Liang & Tsaur, 2007). Lin (2015) described recreation specialization as a continuum of processes and behaviors related to participants' preferences toward cycling activities and activity venues, in which they gradually accumulate knowledge and skills and invest time and resources. The author conceived knowledge and skills, behavioral commitment, personal commitment, and behavior as the sub-dimensions of recreation specialization.

Ellis, Voelkl, and Morris (1998) argued that a flow experience is an optimum experience that arises from a perceived challenge-skill balance. A flow experience is created when a participant feels joy from participating in a leisure activity or work task. This perceived experience is equivalent to physiological or corporeal pleasure and offers spiritual, mental, and psychological benefits, including cell invigoration (Chen & Tsai, 2011). Chao and Chen (2004) stated that peak performance, peak experience, and flow experience could describe the positive and active mental and physical states achieved during activity participation. These states include continuous training and constant achievements and are the primary factor influencing a person to engage in fitness activities continuously. To achieve a flow experience and enjoy the excitement of an activity, a participant must invest a lot of effort and time. This can be referred to as leisure involvement: the higher the involvement, the more likely the activity will fulfill the participant. In other words, flow experience is more likely to occur under high levels of leisure involvement (Chen & Lin, 2011).

Despite the plethora of local studies on serious leisure, recreation specialization, and flow experience, few have investigated whether heavyweight motorcycling influences motorcyclists' serious leisure, recreation specialization, and flow experience. Therefore, this study aims to promote heavyweight motorcycling as a form of leisure, promote regional tourism development, and assist industry bodies in developing indicators of heavyweight motorcycling as a leisure activity.

II.   STUDY OBJECTIVES

Heavyweight motorcycling is a popular leisure activity in Taiwan that, like other adventurous leisure activities, is geared toward serious leisure developments. We investigate the relationships between serious leisure, recreation specialization, and flow experience among heavyweight motorcyclists. The objectives are:

(1) To analyze the factors influencing heavyweight motorcyclists' serious leisure, recreation specialization, and flow experience.
(2) To construct and validate a behavioral model for heavyweight motorcyclists' serious leisure, recreation specialization, and flow experience based on the influencing factors.

So far, no studies have explored the links between the psychological factors related to heavyweight motorcyclists' serious leisure, recreation specialization, and flow experience. Therefore, this study examines the relationships between serious leisure, recreation specialization, and flow experience among heavyweight motorcyclists. The results illuminate how motorcyclists strengthen their serious leisure perceptions, improve their recreation specialization, and optimize their flow experience. The results can be used to promote heavyweight motorcycling as a leisure activity in Taiwan.

III.   LITERATURE REVIEW

1. Serious leisure

Stebbins (2001) defined serious leisure as a participant's systematic and planned participation in an activity that is unrelated to their job. The study identified six characteristics of serious leisure—persevering in the activity, viewing the activity as a career, putting in effort, continuously gaining benefits, having a unique

quality and ethos, and identifying with the activity. Chu and Chen (2010) defined serious leisure as a process in which participants systematically transform an initially recreational activity into a personal leisure career through their unique skills, knowledge, and experiences. The authors noted that serious leisure influences recreation specialization. The serious leisure scale developed by Chang and Li (2000) consists of four dimensions—endeavoring in a career, identifying with the benefits, having a unique ethos, and persevering. Serious leisure involves transforming a leisure activity into a necessary and exciting activity, which the individual masters. Although an activity may start as an exercise goal, it can become an indispensable part of the participant's life (Lu, Liou, Chang, & Kuo, 2013). Chen (2017) designed a serious leisure scale with six dimensions—a preserving attitude, a planned leisure career, endless personal benefits, significant personal efforts, distinct ethos, and a strong identification with the activity. Chung (2014) claimed that serious leisure participants constantly devote and challenge themselves during the activity that they enjoy and, in doing so, find value in their existence. This includes people who exercise regularly at a sports venue, gym, field, or swimming pool, volunteers who relentlessly devote themselves to charity activities, photographers who travel to capture the perfect shot, and theatre directors who spend a fortune on production. Based on the literature review, this study engages with six observed variables for experiential value—perseverance, endless benefits, unique ethos, significant personal efforts, strong identification with an activity, and a planned leisure career.

2. Recreation specialization

Bryan (1977) defined recreation specialization as a continuous behavioral model in which recreationists begin recreational activities with low involvement and evolve into specialized and highly involved participants. These behaviors are reflected through the equipment and techniques required for the activity and the participants' environmental preferences (where the activity is carried out). Scott and Shafer (2001) claimed that progression in recreation specialization could be measured through behaviors, skills, and commitment. Chiu, Lin, and Chang (2010) envisaged recreation specialization as the level of specialization reflected by the experience accumulated from biking activities. Chen (2017) created a recreation specialization scale comprising perception, behavior, and affection. Similarly, Chung, Chen, and Tsai (2013) stated that recreation specialization consists of three dimensions of perception (skills, environmental attributes, and knowledge), behavior (previous experiences, familiarity, and availability of equipment and investments), and affection (continuous involvement). Indeed, recreation specialization is often measured through behavior, perception, and affection. Researchers generally agree that combining these three dimensions results in high recreation specialization (Wu, Wu, & Wang, 2015). Tsai, Cheng, and Chang (2015) measured recreation specialization in terms of continuous involvement, equipment, skills and knowledge, past experiences, familiarity with the recreational environment, and core of life. Based on the literature discussed above, experiential value involves three variables in this study: perception, skills and knowledge, and affection.

3. Flow experience

Flow experience is a state in which a person concentrates on and is completely immersed in an activity to the point that nothing else becomes important (Csikszentmihalyi, 1988). Chen and Lin (2011) conceptualized flow experience as the balance between personal skills and challenges when engaging in a leisure activity, during which a person generates a sense of agency, develops positive emotions, and has a satisfying experience. Flow experience involves six dimensions—skill-challenge balance, the fusion of action and perception, clear objectives, total concentration, loss of self-consciousness and altered time perception, and autonomous experiences. Ghani, Supnick, and Rooney (1991) pointed out that flow experience is perceived through a sense of agency over one's surroundings and is characterized by total concentration and obtaining joy from the activity. A balance between challenges and personal skills is a prerequisite for flow experience. Lin (2019) argued that flow experience does not necessarily occur in elite athletes, as many participants in sporting events also experience it. The dimensions of the flow experience scale developed in this study consisted of distinct objectives, challenges and skills, action control, perception, time perception, and positive emotions. This study uses five variables for flow experience—challenges and skills, distinct objectives, total concertation, active control, and perception and time perception.

4. Hypotheses

This study explores the relationships between heavyweight motorcyclists' serious leisure, recreation specialization, and flow experience. We propose the following hypotheses and study framework (Figure 1) based on the research background, motivations, and objectives:

H1: Serious leisure significantly influences recreation specialization.
H2: Serious leisure significantly affects flow experience.
H3: Recreation specialization significantly affects flow experience.

Heavyweight motorcycling is a popular leisure activity in Taiwan that, like other adventurous leisure activities, is geared toward serious leisure developments. We investigate the relationships between serious leisure, recreation specialization, and flow experience among heavyweight motorcyclists. The objectives are:

(1) To analyze the factors influencing heavyweight motorcyclists' serious leisure, recreation specialization, and flow experience.
(2) To construct and validate a behavioral model of heavyweight motorcyclists' serious leisure, recreation specialization, and flow experience based on the influencing factors.

Limited previous studies have explored the associations between heavyweight motorcyclists' serious leisure, recreation specialization, and flow experience. Therefore, we examine the relationships between serious leisure, recreation specialization, and flow experience in heavyweight motorcyclists. The results highlight how heavyweight motorcyclists strengthen their serious leisure perceptions, improve their recreation specialization, and optimize their flow experience. The results can be used to promote heavyweight motorcycling as a leisure activity in Taiwan.

IV.   METHODS

Figure 1 presents the study framework, in which we assume that serious leisure influences recreation specialization and flow experience, while recreation specialization also affects flow experience.

Data was collected through a literature review and questionnaire. The questionnaire was administered to heavyweight motorcyclists at popular biking destinations and rest stops. The data analysis involved two stages. The first covered the participants' basic data and exploratory factor analysis, and the second centered on confirmatory factor analysis. The data were analyzed using SPSS software, and the study framework was validated through path analysis in structural equation modeling (SEM). The latent path models were analyzed using LISREL, during which the principal factors of each dimension were verified using confirmatory factor analysis, and the hypotheses were confirmed using the factors.
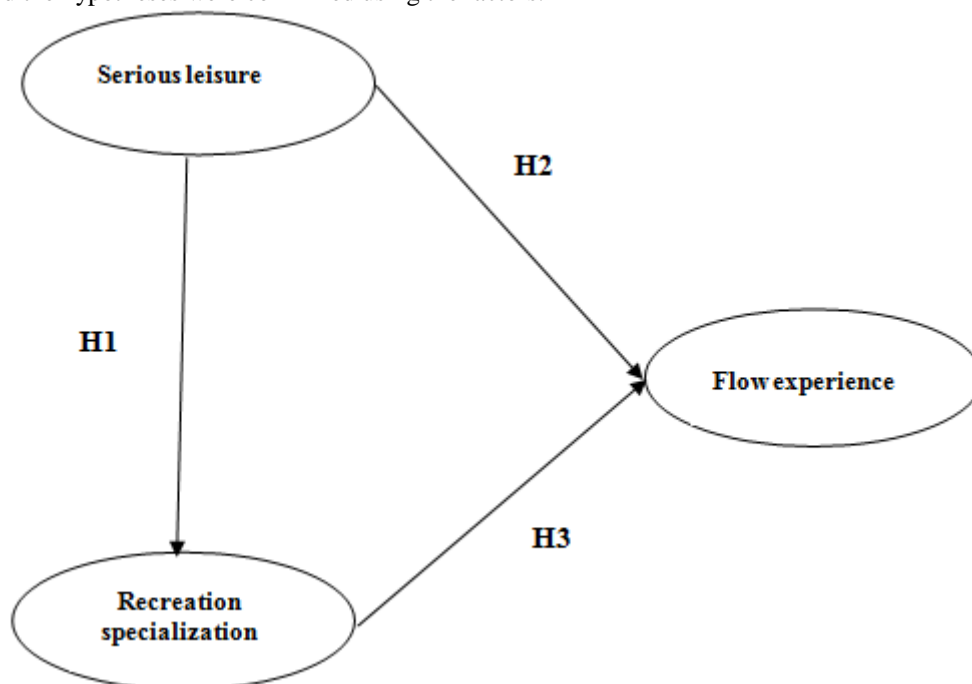

Figure 1. Research framework.

1. Participants

The participants were heavyweight motorcyclists visiting tourist destinations in Taiwan. 500 questionnaires were administered from August 1, 2022, to October 2, 2022. Of the 241 questionnaires recovered, 228 were valid.

2. Instruments and variables

A questionnaire on the behavioral intentions related to heavyweight motorcyclists' serious leisure, recreation specialization, and flow experience was developed based on previous scales and studies. The data was

coded based on this study's needs, and the questionnaire's relevant items served as study variables based on the study's concept model.

(1). Exogenous variable

In SEM, latent independent variables are also referred to as exogenous latent variables. The exogenous variable in this study was experiential value, represented by six observed variables—perseverance, endless benefits, unique ethos, significant personal efforts, strong identification with an activity, and planned leisure career.

(2). Endogenous variable

Latent dependent variables, or endogenous latent variables, consist of intervening and outcome variables according to causal relationships (Huang, 2006).

a. Mediating variable

The mediating variable in this study was recreation specialization, represented by three variables: perception, skills and knowledge, and affection.

b. Outcome variable

The outcomes variable in this study was flow experience, which comprised five variables—challenges and skills, distinct objectives, total concentration, action control, and perception and time perception. According to Bollen (1989), a seven-point rating scale is optimal; therefore, the variables in this study were rated on a seven-point Likert scale.

3. Data analysis

Kline (1998) noted that the kurtosis and skewness of the observed variables in a sample should be tested before model analysis using LISREL so that the estimation and analysis results of the model are not affected. In general, the distribution of the variables is highly skewed when the absolute value is greater than 3, and the distribution is regarded as problematic if the absolute value of kurtosis is greater than 10. Bagozzi and Yi (1988) highlighted that there should be no negative error variances, substantial standard errors, or standardized coefficients greater than 0.95 in a typical model parameter estimation. The fit of the overall model should be fundamentally evaluated using the absolute fit measures index, relative fit measures index, and parsimonious fit measures index. Finally, the fit of the internal structure of the model should be evaluated as a measure of the internal quality of the model. This includes assessing the reliability of each item, the reliability and average variance extracted (AVE) of each latent variable, and all the estimation parameters. The hypotheses can be tested through model testing. The AVE reflects the items' mean explanatory power to the latent variables. Bagozzi and Yi (1988) suggested that an acceptable AVE is 0.5.

V.   RESULTS AND DISCUSSION

1. Participants' characteristics

83 women (36.4%) and 145 men (63.6%) responded to our questionnaire. Most (71%) of the respondents were aged between 30 to 50 years. Most (186, 81.6%) respondents held a senior (vocational) high school diploma.

2. Selection of estimation method

Kline (1998) suggested that the variable distribution is highly skewed if the absolute value is greater than 3, while the distribution is problematic if the absolute value of kurtosis is greater than 10. Table 1 shows that the skewness coefficients in this study ranged from -1.518 to -0.022, and the absolute values were all less than 3. The kurtosis coefficients ranged from -0.830 to 2.664; the absolute values were all less than 10. Therefore, the maximum likelihood method was used to estimate the models.

3. Addressing offending estimates

A typical model parameter estimation should have no negative error variances, substantial standard errors, or standardized coefficients greater than 0.95 (Bagozzi and Yi, 1988). Table 2 shows that the standard error of each parameter was positive and statistically significant (absolute value of t-statistic larger than 1.96), and the standardized coefficients ranged from 0.81 to 0.92. Therefore, there were no offending estimates, and the data passed the basic fit test.

Table 1. The mean, standard deviation, coefficient of skewness, and coefficient of kurtosis of the observed

variables.

Construct	Mean	SD	Skewness	Kurtosis
Serious Leisure	------			
SL1	5.0580	0.03837	-0.062	-1.132
SL2	5.2580	0.04102	-0.046	-1.059
SL3	5.1758	0.04058	-0.024	-1.053
SL4	5.1941	0.04206	-0.110	-1.260
SL5	4.9834	0.04715	-0.022	-0.905
SL6	5.3064	0.03942	-0.216	-0.830
Recreation Specialization	------			
RS1	6.2214	0.03051	-0.998	0.648
RS2	6.1385	0.02995	-0.802	0.209
RS3	6.2138	0.03016	-1.093	0.865
Flow Experience	------			
FE1	6.1232	0.04377	-1.174	1.562
FE2	6.0140	0.03399	-1.067	0.769
FE3	5.8448	0.04223	-1.518	2.664
FE4	5.8864	0.03928	-1.128	1.313
FE5	5.9261	0.03539	-0.766	0.111

Table 2. Model parameter estimates

Parameter	Non-standardized parameter	Std. Deviation	t-value	Standardized parameters
λ_1	1.00	------	------	0.89
λ_2	1.09	0.04	24.22	0.91
λ_3	1.04	0.05	22.51	0.88
λ_4	1.06	0.05	21.53	0.86
λ_5	1.21	0.05	22.21	0.87
λ_6	1.06	0.04	25.11	0.92
λ_7	1.00	------	------	0.84
λ_8	1.00	0.06	17.80	0.85
λ_9	1.07	0.06	18.85	0.91
λ_{10}	1.00	------	------	0.81
λ_{11}	0.85	0.05	18.39	0.88
λ_{12}	1.07	0.06	18.85	0.90
λ_{13}	0.97	0.05	18.12	0.87
λ_{14}	0.85	0.05	17.38	0.85
γ_1	0.15	0.05	3.24	0.20
γ_2	0.23	0.06	3.67	0.22
β_1	0.31	0.09	3.62	0.22

ps：t 值＞1.96(*p<0.05)、t 值＞2.58(**p<0.010)

4. Reliability and validity

Jöreskog and Sörborn (1989) suggested that an acceptable R^2 should be larger than 0.2. This was met in this study as the 14 observed variables' R^2 values ranged from 0.66 to 0.85. Fornell and Larcker (1981) suggested that an acceptable construct validity should be at least 0.6. This was also met as the values were 0.96, 0.90, and 0.94 for the three variables. Additionally, the AVEs of the three variables in this study were 0.78, 0.75, and 0.74, which met Bagozzi and Yi's (1988) recommended acceptable value of 0.5 and above.

Table 3. R^2 and constructed reliability.

Aspect	R^2	Constructed reliability	Average variance extraction
Serious Leisure		0.96	0.78
SL1	0.79		
SL2	0.82		
SL3	0.77		
SL4	0.74		
SL5	0.76		
SL6	0.85		
Recreation Specialization		0.90	0.75
RS1	0.70		
RS2	0.73		
RS3	0.83		
Flow Experience		0.94	0.74
FE1	0.66		
FE2	0.78		
FE3	0.81		
FE4	0.77		
FE5	0.72		

5. Fit of the overall model

Based on the suggestions of Huang (2006), the basic fit of the overall model should be reflected through three indices:

(1) Absolute fit indices

a. The goodness of fit of our model was 0.92, which met the minimum acceptance standard of 0.9.

b. Our model's root mean square residual was 0.037, which met the ideal value of less than or equal to 0.05.

c. The root mean square error of the approximation of our model was 0.072, which met the acceptance range of 0.05 to 0.08, as suggested by McDonald and Ho (2002).

(2) Relative fit indices

1. The normed fit index of our model was 0.97, which met the minimum acceptance standard of 0.9.

2. The non-normed fit index of our model was 0.97, which met the minimum acceptance standard of 0.9.

3. The comparative fit index of our model was 0.98, which met the minimum acceptance standard of 0.9.

(3) Parsimonious fit indices

1. Our model's parsimonious normed fit index was 0.76, which met the minimum acceptance standard of 0.5.

2. Our model's parsimonious goodness of fit index was 0.63, which met the minimum acceptance standard of 0.5.

3. The normed chi-square of our model was 2.56, which was below the maximum acceptance standard of 3.

Testing the model's overall fit aims to understand the coordination between the observed variables and the theoretical model. Based on the data above, the overall fit of our theoretical model was acceptable.

6. Path analysis

Figure 2 presents the empirical results of this study. The parameter estimation showed that (1) The fully standardized coefficient of the influence of serious learning on flow experience was 0.20 (t = 3.24) and attained a level of significance; therefore, H1 is supported; (2) The fully standardized coefficient of the influence of serious learning on recreation satisfaction was 0.22 (t = 3.67) and attained a level of significance; therefore, H2 is supported; (3) The fully standardized coefficient of the influence of flow experience on recreation satisfaction was 0.22 (t = 3.62) and attained a level of significance; therefore, H3 is supported. To summarize, the data supported all three hypotheses in this study and aligned with our expectations.

Local studies on heavyweight motorcyclists' serious leisure, recreation specialization, and flow experience are scarce. By setting serious leisure, recreation specialization, and flow experience as latent variables, this study constructed and validated a model on the leisure behaviors of Taiwanese heavyweight motorcyclists to examine the causal relationships between the constructs and effectively predict the modes of leisure behavior among heavyweight motorcyclists. The results provide a practical reference for relevant stakeholders,

Based on the path analysis of the causal relationships between the study variables, the empirical data

supported all three hypotheses in this study. Serious leisure significantly influences recreation specialization and flow experience, while recreation specialization significantly influences flow experience.
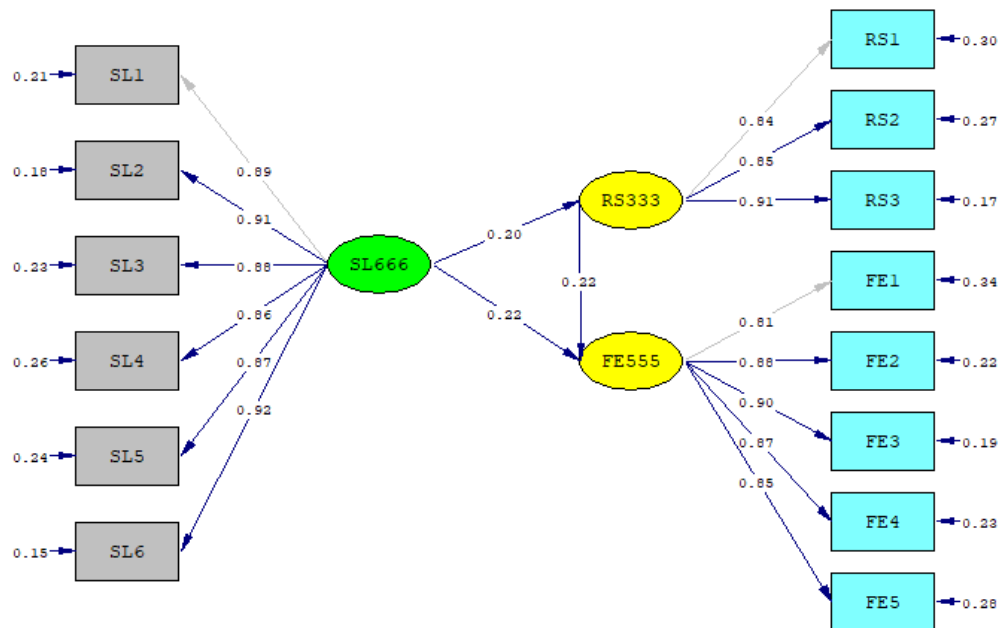

Figure 2. Standardized path diagram

VI.   CONCLUSIONS AND RECOMMENDATIONS

1. Conclusions

This study has examined the relationships between heavyweight motorcyclists' serious leisure, recreation specialization, and flow experience in Taiwan. The causal relationships between the three latent variables were established and analyzed using SEM, and the following conclusions were derived:

(1) Serious leisure significantly and positively influences recreation specialization. This result is in agreement with the studies by Chu and Chen (2010), Chang and Pan (2009), and Chen(2017)/

(2) Serious leisure significantly and positively influences flow experience. This result corroborates Chen and Lin (2011)'s study.

(3) Recreation specialization significantly and positively influences flow experience. This result aligns with the findings by Lin and Tang (2014).

2. Recommendations

Following the reimport of heavyweight motorcycles, trends have indicated that heavyweight motorcycling is now classified as a form of adventurous leisure and recreation in Taiwan. Taiwan's magnificent scenery and complex geographical environment are perfect for traveling by motorcycle, distinguishing it from other modes of transportation. As mentioned by the Tourism Bureau, Ministry of Transportation and Communications in its Taiwan Tourism Toward 2025 manifesto, destinations should equally develop the environmental, economic, cultural, and social aspects of tourism while simultaneously enhancing the scale and economy of the industry. Therefore, stakeholders should aim to increase the experiential value tourists perceive and to improve their pleasure and satisfaction from participating in sustainable tourism. This should be based on data provided by academic research institutions. This study surveyed visitors in southern Taiwan and did not cover other sustainable tourism destinations. We recommend that future studies broaden their scope to cover the whole country. This will help researchers construct a more comprehensive model of the causal relationships between tourists' experiential value, leisure involvement, satisfaction, and behavioral intentions.

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Corresponding author: Ming-Kuei Chien[1]
[1]Tzu Hui Institute of Technology, Department of Leisure, Recreation and Tourism Management, Ping Tung, Taiwan