

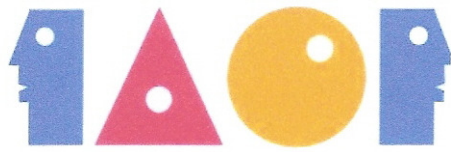
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AN EMPIRICAL STUDY OF COLLEGE STUDENTS' ONLINE PURCHASE BEHAVIOR MODEL TOWARD SPORT MERCHANDISE

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Abstract

The purpose of this study is to explore the possible influences on college students' online purchase behavior, being extended to the impacts of sport merchandise features and website trust using the perspectives of Technology Acceptance Model (TAM). 406 college students were recruited for survey and the data were collected through online survey questionnaires and was analyzed using the structure equation modeling (SEM) methodology. The results show that website trust has a significantly positive impact on usage intention while sport merchandise features and perceived ease of use surprisingly exert no significant effect. Additionally, perceived ease of use is found to have a positive impact on perceived usefulness and perceived usefulness in turn has a positive influence on online usage intention. Finally, online website usage intention is indicated to significantly affect online purchase behavior. The study suggests the sport merchandisers to provide ease of use platform, increase web-trust and provide more attractive sport-related items to increase online buyers.

Keywords: Sports Merchandise, Online Purchase, Website Trust, Technology Acceptance Model

## Introduction

With increasingly advanced information technologies, shopping in physical stores has been considerably shifted to a new trend of online shopping, which can be said to subvert human lifestyle. Accordingly, in modern business operational model, traditional entity stores have been widely transferred to online virtual stores. The appearance of internet not only changes consumption manners but also significantly affect the overall economic net. It has been reported that the development of online shopping websites strongly stimulates global consuming market (Quelch and Klein, 1996). The American research survey analysis has addressed that the development of internet online shopping trend makes the sport merchandise' manufacturers increase to 85% (Hur, Ko, and Valacich, 2007).

Among them, the advantages of online purchase lie in the fact that the sale of sport merchandises with diverse types and styles accounts for larger market than merchandises sold by physical stores (Lieberman, 2000). Nonetheless, facing the phenomenon that purchase from physical stores has been shifted to online purchase, a considerable part of online consumers still keep conservative attitude. The main factors explored have been indicated to be the lack of cognition, familiarity, and even trust toward the online shopping systems. Hence, it is believed that before conducting online trades, consumers will evaluate the utilized information technology and related issues (e.g., perceived usefulness, perceived ease of use, and usage intention

as analyzed in the Technology Acceptance Model) and then build up their trust toward the online websites as the basis for further decisions.

Based on the Theory of Planned Behavior (Fischbein and Ajzen, 1975), Davis (1986) has modified to propose reformed theoretical model of the Technology Acceptance Model (TAM). On exploring consumer behavior, this model has been widely employed to examine computer users and technological users' perceived ease of use and perceived usefulness as independent variables and attitude, behavior intention, and usage behavior as dependent variables, further investigate the possible relations among the variables (Davis, 1989).

In sum, this research attempts to focus on the aspects of college students' online shopping behavior, sport merchandise features, website trust, and TAM model to extend the investigation for sufficiently understanding college students' online purchase behavior model. Additionally, this study aims to explore how online purchase promotes college students' usage intention. Survey questionnaires were used as the main instrument for data collection. The structural equation modeling methodology (SEM) was employed as the statistical analysis approach for understanding college students' online purchase behavior toward sport merchandises.

## Literature Review and Conceptual Framework Development

Kotler, Armstrong, Saunders, and Wong (1997) propose that product is

used to satisfy human needs and desires and it represents the exchange objects in the marketing process. The objects can be not only tangible goods but also intangible services. Based on the above perspective, this study defines online sport merchandise features as online products that meet human sport needs and desire no matter they are tangible goods or intangible services.

In the extant literature, a wide range of trust-related researches has been observed in different fields. Among them, McLain and Hackman (1999) view trust as a belief that causes human to react spontaneously, believe, and be willing to carry out actions. Based on this premise, this study defines trust as consumers' willingness to believe the reliability of intercourse between both sides during the online shopping transaction processes, which is also expressed as an expectation of faith. Perceived ease of use (PEOU) has been referred to as users' experience toward the operational ease and simultaneously shows users' level of mastering the new information technology. When users believe that they spend less effort in using the new information technology, they will be more willing to accept the system operation and express higher self-efficiency (Davis, 1989). Therefore, this study defines PEOU as users' experience toward the website's operational ease, which in turn shows their high acceptance and willingness to continue browsing.

Perceived usefulness (PU) has been considered as users through applying related affairs generate self-efficiency and consequently make subjective evaluations. Davis (1989) believes that users will definitely keep positive attitude and are more willing to operate

once perceiving the usefulness of the new information technology. As a result, this study defines perceived usefulness (PU) as users through using the websites perceive their effectiveness and subsequently make subjective assessments on the generated practical benefits.

Fishbein and Ajzen (1975) consider usage intention as users' willingness to implement some kinds of immediate behavior intention. Additionally, Liu (2003) defines usage intention as users' subjective intention to use the website functions in the future. Moreover, Taylor and Todd (1995) refer usage intention as users' responding actions to current status, no matter positive or negative. To sum up previous perspectives, this study defines usage intention as users' willingness to continuously conduct online purchase.

Pavlou and Fygenon (2006) address that how to effectively trigger consumers' desire of obtaining the products lies on how the businesses make consumers pay more attention to merchandises' related information before conducting online purchase behavior. Therefore, this study defines online purchase behavior as consumers through online environment contacts with entrepreneurs and obtained products' related information determine to directly conduct online purchase.

#### *Sport Merchandise Features And Website Usage Intention*

Lim and Dubinsky (2005) through applying TPB in e-commerce B2C and the Structural Equation Modeling (SEM) approach to explore the effects of variables including merchandise, convenience, interactivity, reliability, promotions, and navigation on purchase inten-

tion find that merchandise, reliability, and navigation have significant impacts on usage intention. Among them, reliability is noteworthy acknowledged to be similar to website trust and navigation is considered similar to perceived ease of use. Hence, in order to complete the framework in this study, online sport merchandise features should be taken into account. In practice, the web browsers with diverse product features such as high quality of product information, variety of merchandise, and comparatively low price will positively affect consumers' usage intention. Accordingly, the first hypothesis is proposed as follows.

H1: Sport merchandise features have a positive impact on website usage intention.

**Website trust and usage intention**  
In online shopping, business entities have been referred to as consumers conducting trading transactions through the websites. Throughout buying and selling transactions between both sides through the websites, certain risk factors potentially exist. In these situations, trust becomes a critical issue (Reichheld and Schefter, 2000). Hence, if the laws on online shopping are not fully developed, online transactions and product quality will cause significant challenges. However, consumer trusts on online shopping websites has been widely believed to be considerably determined by the websites' attitude criteria and users' evaluation on the websites. Once the websites' behavior is consistent and meets users' expectancy, the online shopping websites will be viewed as trustworthy, which in turn effectively makes consumers willing to pay a higher fee in online transactions. Additionally, once the online shopping websites are

able to improve consumer trust, their consumption willingness will greatly increase (Gefen, 2000). As a result, the online shopping websites should attempt to maintain good relations between buyers and sellers while reducing the potential risks arising from online purchase processes.

In e-commerce activities, Reichheld and Schefter (2000) propose that trust is the important prerequisite since opportunistic behaviors easily occur throughout online purchase activities. Yang, Chen, Wu, and Chang (2013) through constructing a behavioral model of consumers' usage behavior toward travel blogs point out that website experiences influence behavioral intentions after affecting message trust. In other words, message trust can enhance consumers' behavioral intention. Hence, it is expected that higher trust on online shopping websites stimulates higher usage intention. Accordingly, this study proposes the following hypothesis.

H2: Website trust has positive impact on usage intention.

**Perceived ease of use, perceived usefulness, and usage intention**  
Davis, Bagozzi, and Warshaw (1989) proposed the TAM theoretical model as the generation of spontaneous acceptance on response to new information technologies, being extended into two different beliefs of (1) perceived ease of use (PEOU) which refers to users' acknowledgement of the ease of operation and shows users' level in mastering new information technologies and (2) perceived usefulness (PU) which refers to users through applying related affairs produce self-efficacy and then make subjective evaluations. However, when users get familiar with the new informa-

tion technologies and information skills, the importance of their perceived ease of use and perceived usefulness will be changed (Davis, 1989; Karahanna and Straub, 1999; Karahanna, Straub, and Chervany, 1999).

The basic logic of TAM suggests that users are based on the rational approach to choose to use an information technology (Gefen, 2000). Hence, websites with easier and more understandable user interface as well as more practical functions will considerably increase users' re-visit willingness (Lai, Huang, Chang, and Su, 2013). In other words, users with higher degree of perceived ease of use will exert a higher degree of perceived usefulness on new information technologies. Additionally, easier website operation can effectively allow users to complete the actions more easily, which in turn beneficially enhances their future usage intention toward the websites (Gefen and Straub, 2003). Moreover, Lai et al. (2013) indicated that perceived ease of use has significantly positive effects on both perceived usefulness and usage intention of digital music. Based on the above mentioned literature, this study proposes these following hypotheses.

H3: Perceived ease of use has a positive impact on usage intention.

H4: Perceived ease of use has a positive impact on perceived usefulness.

H5: Perceived usefulness has a positive impact on usage intention.

#### *Usage Intention And Online Purchase Behavior*

Taylor and Todd (1995) refer usage intention as users' responding actions to

currents status, no matter positive or negative. In line with this, Fishbein and Ajzen (1975) consider usage intention as users' willingness to implement their immediate behavioral acts. Further elaborating, Liu (2003) defines usage intention as users' subjective intention to use the website functions in the future. However, a major part of previous e-commerce researches has mainly focused on the procurement of goods. It is noted that how to effectively trigger consumers' desire of obtaining the products lies on how the businesses make consumers pay more attention to related merchandise information before proceeding to online purchase behavior (Pavlou and Fygenson, 2006). Hence, once the items cannot obtain consumers' interest or identification as well as cause them to have no further intention to understand the products, consumers' possibility of purchasing the products will almost turn to zero. For this reason, in this IT era, online purchase behavior has been widely referred as consumers through online environment contacts with entrepreneurs and obtained products' related information determine to directly conduct purchase behavior. Consequently, usage intention is expected to directly influence online purchase behavior. Based on this premise, this study finally attempts to explore whether consumers' usage intention has a significant impact on their actual online purchase behavior. Accordingly, the final hypothesis is proposed as follows.

H6: Usage intention has a positive impact on online purchase behavior.

In sum, according to the above-mentioned studies and six proposed hypotheses, the conceptual framework was

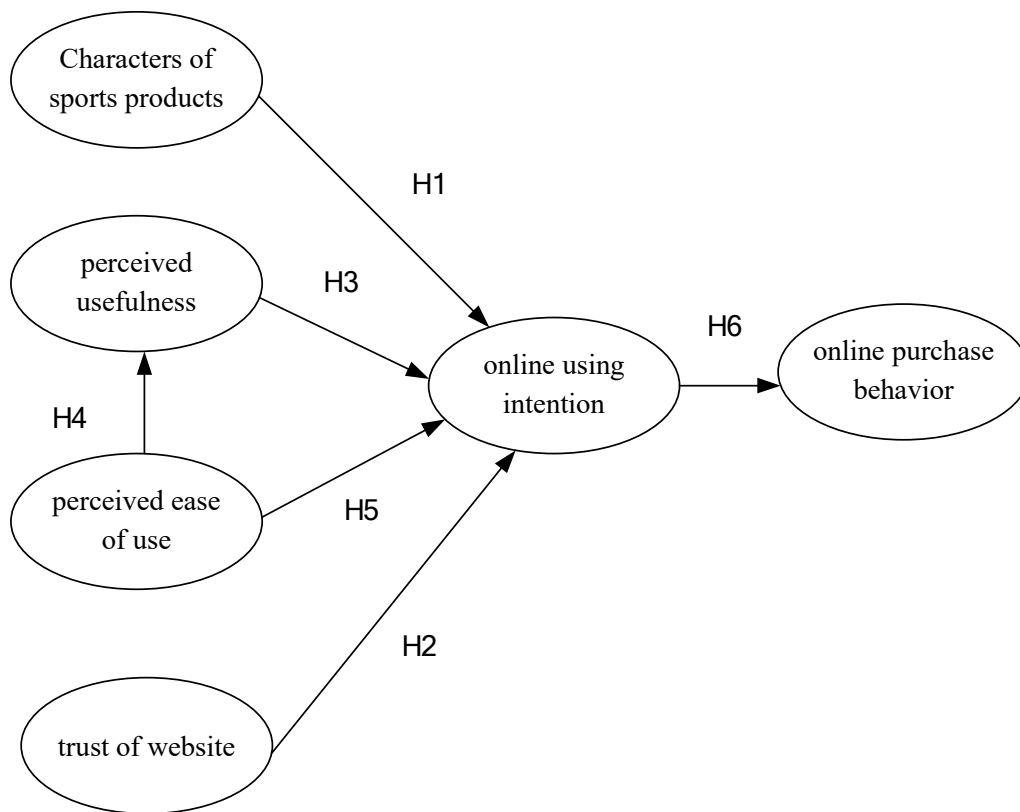


Figure 1. The conceptual framework

established, being shown in Figure 1 above.

#### Research methods

##### *Data Collection*

The research data of this study were collected using online survey questionnaire approach. As such, the MY3Q platform (<http://www.my3q.com>) was employed for releasing questionnaires and receiving responses online from respondents. The scope of this study ranged from Northern to Central and Southern Taiwan and students of five colleges in each region were targeted as main research subjects. E-mails were initially sent to several students of each school who would be on behalf of the research to forward the e-mails to other students. Consequently, a total of 420

questionnaires were returned. After eliminating incomplete responses and questionnaires with random answers, 406 valid questionnaires were valid for conducting data analysis, achieving a high response rate of 96.7%.

##### *Questionnaire design and Measurement instruments*

The questionnaire was divided into six parts including sport merchandise online consumer behavior scale, TAM scale, websites trust scale, usage intention, and respondents' basic information. The first part was sport merchandise online consumer behavior scale, being measured by a total of six questionnaire items based on Huang and Wu (2007). The second and the third parts were TAM scales, which covered two dimensions of perceived ease of use and per-

ceived usefulness, being measured by a total of 8 questionnaire items adopted from Davis (1989). The fourth part aimed to investigate the website trust scale. Accordingly, a total of 5 questionnaire items were developed based on the scales suggested by Wu et al. (2008). The fifth part presented the usage intention scale, being evaluated by a total of six questionnaire items adopted from Huang and Wu (2007). Finally, the last part of the questionnaire attempted to collect respondents' basic information including gender, grades, years of using the network, average daily network use time, purchase frequency, and the amount of monthly disposable money. For reliability test, the Cronbach's  $\alpha$  was employed to determine the internal consistency of the proposed scales. The results showed that the achieved Cronbach's  $\alpha$  for sport merchandise online consumer behavior scale, perceived ease of use scale, perceived usefulness scale, website trust scale, and usage intention scale were .89, .90, 0.88, .93, and .87, respectively, indicating a very high internal consistency and thus reliability for all scales.

### Data Analysis

For sufficient understanding of the complex relationships among proposed constructs and variables, structural equation modeling (SEM) approach was used to test theoretical hypotheses (Hair, Black, Babin, and Anderson, 2010). As such, LISREL version 8.80 was used to analyze the overall model. For assessment of fit for the proposed model, this study was based on Hair et al. (2010) and Huang et al. (2012) that the proposed model should be evaluated from overall model fit as well as fit of internal structure. Accordingly, fit indicators were employed, including absolute fit

indices (e.g., chi-square ( $\chi^2$ ), goodness of fit index (GFI), and root mean square error of approximation (RMSEA)), incremental fit indices (e.g., non-normed fit index (NNFI) and comparative fit index (CFI)), and parsimony fit indices (e.g., parsimonious normed fit index (PNFI) and normed chi-square ( $\chi^2/df$ )).

## Results

### *Demographic Analysis Results*

The demographic statistical analysis presented that out of 406 respondents, male students accounted for 42.1% (171 respondents) in comparison with 57.9% of female students (235 respondents), among whom 87 respondents were freshmen (21.4%), 145 were sophomore students (35.7%), 64 were third-year students (21.4%), and 110 were fourth-year students (27.1%). Regarding years of using the network, 3 respondents (0.7%) had been using less than 3 years, 18 (4.4%) from 3 to 5 years, 58 (14.3%) from 5 to 7 years, and 327 (80.5%) had been using more than 7 years. Noteworthy, in terms of average daily network use time, 83 respondents (20.4%) used less than 3 hours daily, 83 (20.4%) used from 4 to 7 hours, 160 (14.9%) used from 8 to 10 hours, and 66 (12.3%) used more than 11 hours daily. Concerning purchase frequency, 30 respondents (7.4%) had never conducted any online purchase before, 199 (49.0%) had purchased from 1 to 5 times, 114 (28.1%) from 6 to 10 times, 29 (7.1%) from 11 to 15 times, and 34 (8.4%) had experienced more than 15 times of online purchase. Finally, considering the amount of monthly disposable money, 187 respondents (46.1%) spent less than US\$165, 178 (43.8%) spent from US\$165 to US\$330, 30 (7.4%) spent



from US\$330 to US\$500, and 11 (2.7%) spent more than US\$500 in total.

### *SEM Model Evaluation*

The overall model fit analysis results showed that the absolute fit indicator  $\chi^2$  ( $\chi^2=1015.31$ ,  $p=.00$ ) reached a significant level, implying that a discrepancy existed between the covariance matrices of this model and of the empirical data. As such, the model should be rejected since it was easily affected by large samples. However, other achieved values presented converse results. Specifically, regarding goodness-of-fit measures, the SRMR value (.06) and the RMSEA value (.08) were less than the standard value (< .08), indicating that the model was acceptable. Concerning relative fit measures, the NNFI value (.97) and CFI value (.97) were greater than the standardized value (> .90), suggesting the model was acceptable. In terms of parsimonious fit measures, the PNFI value (.86) was greater than the standard value (> .50), addressing the model was acceptable. In addition, the obtained value for  $\chi^2/df$  was 3.49, which was less than the standardized value of 3. In sum, on the basis that all model fit indicators passed the fitness test, the proposed model was proven to be acceptable for further analysis.

### *Models Hypotheses Test*

Figure 2 shows the structural parameter testing of the proposed hypotheses.

Accordingly, the achieved value for  $\gamma_1$  standardized parameter was .01 ( $t=1.21$ ), which did not reach the significant level. Hence, H1 was not supported. In other words, sport merchandise fea-

tures had no directly positive impact on online usage intention.

Regarding hypothesis H2, the value for  $\gamma_2$  standardized parameter was .39 ( $t=7.63$ ), which reached the significant level. Therefore, H2 was supported, implying the directly positive impact of website trust on usage intention. In terms of hypothesis H3, the value for  $\gamma_3$  standardized parameter was .09 ( $t=1.69$ ), which did not reach the significant level. Consequently, H3 was not supported, indicating that perceived ease of use exert no directly positive impact on online usage intention.

Concerning hypothesis H4, the value for  $\gamma_4$  standardized parameter was .86 ( $t=15.81$ ), which reached the significant level. As a result, H4 was supported. Hence, it was assumed that perceived ease of use had a directly positive impact on perceived usefulness. Similarly, hypothesis H5 reached the significant level with the  $\gamma_5$  standardized parameter of .42 ( $t=4.28$ ) and subsequently was supported, suggesting the directly positive impact of perceived usefulness on website usage intention. Moreover, hypothesis H6 reached the significant level with the  $\gamma_6$  standardized parameter of .24 ( $t=4.54$ ). Hence, H6 was supported, which in turn addressed that usage intention had a directly positive impact on online purchase behavior. Finally, it was noted that the statistical analysis showed no direct impacts of sport merchandise features and perceived ease of use on online usage intention. Instead, it was observed that perceived ease of use after affecting perceived usefulness exerted an indirect influence on online usage intention. Therefore, it was concluded that

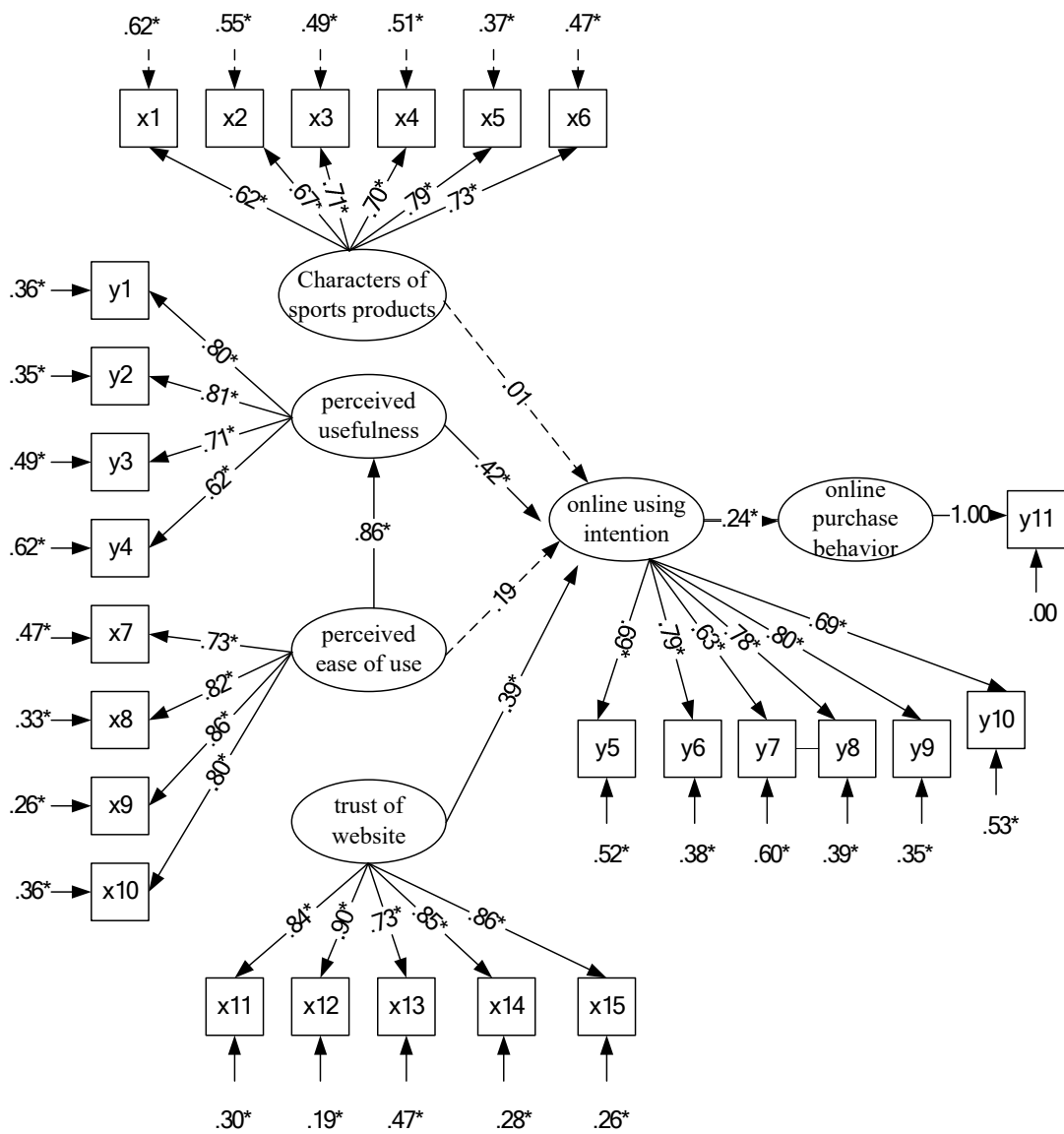


Figure 2. Standardized Parameter Estimation Of Overall Model

perceived usefulness had a mediating effect on the relationship between perceived ease of use and online usage intention.

## Discussion

In this study, except for unsupported hypotheses H1 and H3 that did not have significant impacts, the other four hypotheses all reached significant level and proved the relationships among the variables proposed in the structural model. The results are described in details as follows.

1. Sport merchandise features and usage intention - Surprisingly, the results find that sport merchandise features do not affect consumers' usage intention. According to Cheng et al. (2000), the main factors leading to the existence of various typical sport merchandise categories lie on the attempts to meet and satisfy customer demands. However, when conducting online purchase consumers are merely based on the product information from the websites to determine whether the product meets their needs. Additionally, in Taiwan, it is maybe yet popular to establish sport-related product online shopping websites. Moreover, the relevant information connections and navigation are not like those in USA and Europe with effective organizational

system structures. Hence, on response to annually increasing sport events, managers of large websites are strongly recommended to seriously consider and emphatically promote this aspect.

2. Website trust and usage intention - Website trust has been claimed to have a positive impact on usage intention. In situations that certain risk factors potentially exist when transactions between sellers and consumers are conducted through the website, website trust is generally acknowledged to exert a significant impact on consumers' usage intention. Therefore, it can be concluded that website trust is a critical factor that need to be emphatically promoted once businesses attempt to stimulate consumers' usage intention, which in turn supports the finding of Reichheld and Schefter (2000).

3. Perceived ease of use and usage intention - In this study, perceived ease of use (PEOU) is found to have no positive impact on usage intention. Noteworthy, perceived ease of use in the extant literature has been referred to as users' acknowledgement of the operational ease, simultaneously shows users' level of mastering new information technology. Therefore, it can be explained that online users with a certain level of mastering new informa-

tion technology will express higher perceived ease of use on interface operations since they find it is not difficult. For this reason, from the single variable of perceived ease of use, it is observed that when users are familiar with this information technology, the perceived importance will be changed considerably.

4. Perceived ease of use and perceived usefulness - Perceived ease of use has been indicated to have a positive impact on perceived usefulness, which is consistent with previous studies (Davis et al. 1989; Lai et al. 2013). It is noted that in TAM model, perceived ease of use and perceived usefulness are widely employed to measure users' degree of acceptance to new information technology. Therefore, it is assumed that when consumers' perceived ease of use is higher, their degree of perceived usefulness on new information technology is higher.

5. Perceived usefulness and usage intention - Perceived usefulness is proven to exert a positive impact on usage intention. In other words, consumers' higher perceived ease of use leads to higher degree of perceived usefulness on new information technology, which in turn significantly promotes their usage intention in the future. This finding has strongly sup-

ported previous studies (Gefen and Straub, 2003; Yang et al. 2013).

6. Usage intention and online purchase behavior - Usage intention has been proven to positively affect online purchase behavior. The result is in the line with Liu (2003) and Pavlou and Fygenon (2006) that users' subjective intention will affect their actual online purchase behavior and purchase frequency. Therefore, it is concluded that user's online usage intention has considerable explanatory power on their actual purchase behavior.

#### Recommendations

This study finds that perceived ease of use exerts the strongest impact on college students' online purchase behavior toward sport merchandise. Therefore, the findings suggest industrial entrepreneurs should firstly attempt to understand users' demands and emphatically design website features that contain the information and contents users want to obtain. For instance, the websites should be in accordance with consumer demands for items such as apparel, sneakers, and equipment appliances, etc. to present further detailed information of different functional sneakers and prices, suitable description of the objects as well as provide experience sharing

forum for users who have bought the products for effectively enhancing product quality trust. Since consumers when conducting online shopping are unable to have the opportunities for trial or actually feel the product quality, the websites are recommended to provide more descriptions and explanations to consumers' common queries since this endeavor speedily increases consumers' trust on the products and their purchase willingness through reducing their seeking time and suspect toward product applicability. Once consumers can easily find the suitable sport products in a short time, they will definitely generate a high degree of satisfaction.

Nonetheless, the results indicate that perceived ease of use do not affect online usage intention. In other words, perceived ease of use is unable to directly make users generate usage intention. This can be explained that the operation modes of websites recently are very similar to one another. Therefore, it is essential to show their ideal or suitable sport products containing elements which consumers concern. Once spending less time in seeking expected products, consumers' usage intention will be strongly stimulated.

In addition, website trust has been proven to be an important factor affect-

ing college students' online purchase behavior toward sport merchandise. Noteworthy, factors causing consumers' hesitation to online stores in the extant literature mainly lie on concerns of trading security, privacy, credit card, ATM crimes, etc. Due to this fact, it is strongly suggested that websites should be able to provide guarantee for consumers regarding information security and safety consumption accreditation system description. For instance, the websites should cooperate with related organizations or institutes (e.g., Consumer Protection Committee, Consumers' Foundation, and Fair Trade Commission) to safeguard consumer rights and interests in trading. Once clearly understanding those online stores can be in line with the business network to tightly safeguard consumer rights and interests, their online purchase desire will significantly increase.

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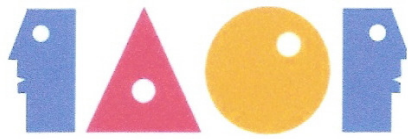
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**ROLE STRESS AND JOB BURNOUT OF SCHOOL COACHES:  
USING SOCIAL SUPPORT AND SELF-EFFICACY  
AS MODERATORS**

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**Abstract**

The purpose of this study aims to understand the correlations among role stress, role stress and self-efficacy of school coaches in Taiwan. The present research designed three valid and reliable scales as instruments of the study, namely the Social Support Scale for Sport Coaches, Role Stress Scale for Sport Coaches, Self-Efficacy Scale for Sport Coaches, and Job-Burnout Scale of Sport Coaches. By adopting partial least square statistic software to conduct analysis, this study discovered the following results: (1) school coaches' role stress and job burnout are positively correlated; on the correlation of role stress to job burnout, this research found that: (1) self-efficacy obtains a significant, negative moderator effect; (2) general coaching efficacy obtains a significant, negative moderator effect on the correlation; (3) individual coaching efficacy obtains a negative however insignificant moderator effect; (5) social support does not obtain moderator effect on this correlation; (6) social support obtains a negative moderator effect while self-efficacy obtain no influence when these two are tested.

**Keywords:** partial least square, instrument validation, individual coaching efficacy, general coaching efficacy, moderator effect.

## Introduction

### *Research Motivation*

Individuals are facing stress in daily life and a high level of it is detrimental toward individual health, wellbeing, and performance in every aspect. Stress is a tense physical or emotional feeling. Due to the incapability to cope and response to change from stressful emotion, it often results in anxiety and discomfort. (Vijayashree & Mund, 2011). However, an adequate level of stress is mandatory for one's alertness and activeness. According Srivastav (2010), stress is additive in nature, and individual should prevent the development and increase of stress as well as maintain stress in a reasonable balance. Role stress is a general social phenomenon that has aroused several researchers' notice. Trayambak, Kumar and Jha (2012) postulated that role stress and pressure received from work are positively correlated. As pressure from work heightened, it would affect working enthusiasm and efficiency, eventually become detrimental to workers' physical and mental health (Frey, 2007). Since school coach is an occupation prone to higher role stress, the present study aimed to understand more of this issue.

Job burnout is a mental, physical, and emotional exhaustion caused by

chronic and continuing stress (Cheng, 2008; Sharma, 2007; Yu, Lin, & Hsu, 2009). It is found in varieties of occupations and thus become the center of attention to researchers. Job burnout is a combination of reactions resulted from working pressure, physical and mental fatigue. The major characteristics of job burnout include the irresponsibility during service or work, emotional and physical deterioration, fatigue, irritation and anxiety (Zhang, Zhang, Zhou, Qiu, & Zhou, 2010). According to Anand, Nagle, Misra and Dangi (2013), job burnout and role stress are significantly and positively correlated. School coaches are often affected by stress from social support and role-stress in the process of training student athletes; therefore, how to adapt to stress and lower job burnout is an issue for school coaches.

Social support is referred to the interpersonal care and support received from people of other relations, including work, family and other contexts (Guralnick, Hammond, Neville, & Connor, 2008). According to Friedman (2000), social support is negatively correlated to stress. Singh, Amish and Singhi (2015) conducted a research and revealed that the enhancement of social support could diminishing role stress and further leads to job satisfaction within an organization. Lambert, Altheimer and Hogan

(2010) posited that social support is influential to job burnout. Social support could reduce stress, diminish the negative impact of stress and job burnout, as well as enhance working performance (Hauck, Snyder, & Cox-Fuenzalida, 2008; Lin, 2009). Thus, the study believes that an increase in social support and encouragement from others could reduce school coaches' role stress and job burnout. Furthermore, social support is an important aspect to enhance self-efficacy, and research had indicated that self-efficacy and social support are positively correlated (Wang, Qu, & Xu, 2015).

Self-efficacy is also a factor of stress and burnout. Several studies have discovered and affirmed that self-efficacy and stress form an inverse relationship that self-efficacy is a preventive factor toward stress (Blecharz et al., 2014; Schawarzer & Hallum, 2008; Shen, 2009; Vaezi & Fallah, 2011; Yu et al., 2009). Benight and Bandura (2004) pointed out that social support is effective as an individual obtains a high level of self-efficacy. In addition, related research claimed that social support and self-efficacy are positively correlated (Shen, 2009). Brouwers, Evers and Tomic (2001) conducted a research on school teachers and discovered that the effects of social support and self-efficacy are significant toward teachers'

consciousness and predictive to teachers' job burnout. Hahn, Binnewies, Sonnentag and Mojza (2011) suggested that self-efficacy enhance the efficiency of recovery from job burnout.

The researcher discovered that there are little research conducted to examine the moderator effect of social support and self-efficacy toward school coaches' role stress and job burnout. Therefore, the study aims to understand whether there is a moderating effect for the two on school coaches' role stress and job burnout. This study thus recruited school coaches in Taiwan as research subjects, including elementary, junior high, high school, and collegiate coaches. In hope of finding appropriate intervention to coaches' burnout, the research further discusses the relationships among role stress, social support, self-efficacy, and job burnout, providing suggestions and implications, which may raise social attention.

#### *Research Purpose and Hypothesis*

From aforementioned references and discussion, the present research generated the following purposes hypothesis:

1. Discuss the correlations between school coaches' role stress and job burnout.

2. Discover the moderator effect of school coaches' self-efficacy and social support on the correlation of role stress to job burnout.

And further generated the following hypothesis:

- H1: School coaches' role stress positively affects job burnout.
- H2: Self-efficacy obtains a significant moderator effect on school coaches' role stress to job burnout.
- H3: Individual coaching efficacy obtains a significant moderator effect on the correlation of role stress to job burnout.
- H4: General coaching efficacy has significant moderator effect on the correlation of role stress to job burnout.
- H5: Social support has significant moderator effect on the correlation of role stress to job burnout.
- H6: Self-efficacy and social support obtain significant moderator effects on the correlation of role stress to job burnout.

## Methodology

### *Participants*

To achieve the purpose and examine the hypothesis of the study, this study conducted pilot testing and formal testing. The purpose of pilot testing is to design valid and reliable scales for formal study, the present study randomly recruited 120 school coaches as subjects of the study. For formal testing, 258 school coaches were recruited. These school coaches were coming from different levels of schools, including elementary school, junior high school, high school and universities.

### *Instruments and Pilot Testing*

The instruments of present study were Social Support Scale for Sport Coaches (SSSSC), Role Stress Scale for Sport Coaches (RSSSC), Self-Efficacy Scale for Sport Coaches (SESSC) and Job-Burnout Scale for Sport Coaches (JBSSC) to examine school coaches' received social support, role stress, self-efficacy and job-burnout in occupational environment. All instruments were pilot tested and examined by exploratory factor analysis and reliability test to ensure the validity and reliability of the scale.

Factor analysis was conducted to detect the underlying structure of items of all scales (SSS, RSS, SES & JBS). Examination of the Kaiser-Meyer Olkin (KMO) measure of sampling adequacy

was conducted. From the result, the KMO values of the SSS, RSS, SES and JBS were .930, .933, .901 and .913 respectively; and, all scales have achieved significance ( $p < .001$ ). Therefore, all four scales were adequate for further procedure of factor analysis. Principle Component Analysis (PCA) with a Varimax (orthogonal) rotation was then conducted because of the conceptual simplicity and ease of description.

#### *Social Support Scale for Sport Coaches (SSSSC)*

The SSSSC was adapted from Lee's (2008) Social Support Scale for Elementary School Teachers. After pilot testing, the researcher modified the original draft of SSSSC to formal draft; the formal version of SSSSC is a five-point Likert scale ranging from strongly disagree (one point) to strongly agree (five points) and consisting of 21 items that categorized into three factors, namely Administrative Support, Collegial Support and Family Support. All three factors obtained the sum of squared loadings greater than one. Therefore, the present study and following analysis had specified the number of factors as three.

The eigenvalues of Administrative Support, Collegial Support and Family Support were 13.33, 4.45 and 2.16 respectively. These factors have eigenval-

ues over Kaiser's criterion of 1 and a combination explained 67.72% of the variance. The value of Cronbach's  $\alpha$  of the SSSSC was .95, for subscales (factors) in the SSSSC, the Cronbach's  $\alpha$  coefficients were .94 (Administrative Support), .92 (Collegial Support), and .93 (Family Support).

#### *Role Stress Scale for Sport Coaches (RSSSC)*

The RSSSC was adapted from the Role Stress Scale for Elementary School Teachers by Cheng (2008). After pilot testing, the original draft of RSSSC was modified to formal draft; the formal version of RSSSC is a five-point Likert scale ranging from strongly disagree (one point) to strongly agree (five points) and containing 15 items that categorized into three factors, namely Work Load, Role Ambiguity and Role Conflict. All three factors obtained the sum of squared loadings greater than one. Therefore, the present study and following analysis had specified the number of factors as three.

These factors all have eigenvalues over Kaiser's criterion of 1 and a combination explained 58.08% of the variance. The eigenvalues of Work Load, Role Ambiguity and Role Conflict were 11.21, 1.73 and 1.58 respectively. The value of Cronbach's  $\alpha$  of the RSSSC was

.95; the Cronbach's  $\alpha$  coefficients of the subscales (factors) of RSSSC were .86 (Work Load), .84 (Role Ambiguity), and .92 (Role Conflict).

*Self-Efficacy Scale for Sport Coaches  
(SESSC)*

The SESSC was adapted from Chu-Chen's (2002) Self-Efficacy Scale for School Teachers. The researcher modified the original draft of SESSC to formal draft based on the result of pilot testing; the formal version of SESSC is a five-point Likert scale ranging from strongly disagree (one point) to strongly agree (five points) and comprising of 10. From the result of factor analysis, two factors obtained the sum of squared loadings greater than one. Therefore, the present study and following analysis had specified the number of factors as two. These two dimensions are General Teaching Efficacy and Individual Teaching Efficacy. Individual coaching efficacy was the amount of confidence of school coaches shown toward athletes' training, as well as the ability of positive coaching and adjustment; general coaching efficacy indicates the extent of coaches' influence toward athletes from the environment.

The eigenvalue of General Teaching Efficacy was 4.75 and Individual Teaching Efficacy, 1.45. These factors have

eigenvalues over Kaiser's criterion of 1 and a combination explained 44.31% of the variance. The value of Cronbach's  $\alpha$  of the SESSC was .84; for subscales (factors) of the SESSC, the Cronbach's  $\alpha$  coefficients were .70 (General Teaching Efficacy) and .81 (Individual Teaching Efficacy).

*Job-Burnout Scale of Sport Coaches  
(JBSSC)*

The JBSSC was adapted from Chen's (2003) Job-Burnout Scale for Junior High School Administrators. After pilot testing, the researcher modified the original draft of JBSSC to formal draft; the formal version of JBSSC is a five-point Likert scale ranging from strongly disagree (one point) to strongly agree (five points) and consisting of 15 items. The result of factor analysis revealed that only three factors obtained the sum of squared loadings greater than one. Therefore, the present study and following analysis had specified the number of factors as three. These three factors are Emotional Exhaustion, Diminished Sense of Achievement and Dehumanization.

The eigenvalues of Emotional Exhaustion, Diminished Sense of Achievement and Dehumanization were 5.89, 1.37 and 1.03 respectively. These factors obtain eigenvalues over Kaiser's

criterion of 1 and a combination explained 54.82% of the variance. The value of Cronbach's  $\alpha$  of the SSSSC was .89; for subscales (factors) in the JBSSC, the Cronbach's  $\alpha$  coefficients were .72 (Emotional Exhaustion), .92 (Diminished Sense of Achievement), and .93 (Dehumanization).

#### *Formal Study*

The participants of the formal study were school coaches from varieties of schools in Taiwan. The researcher had issued 300 scales to school coaches that were randomly chosen for formal study, and retrieved 258 valid scales.

#### *Validity and reliability of Scales in Formal Study*

The present research performed con-

firmatory factor analysis to examine the validity and reliability of the adopted scales. By using Warp PLS 5.0 statistical software (Kock, 2015), item reliability, convergent validity and discriminant validity were examined (Hulland, 1999).

#### *Item Reliability*

This study adopted composite reliability (CR) and Cronbach's  $\alpha$  coefficient to examine the reliability of scales in formal study. It was suggested that the CR value and Cronbach's  $\alpha$  coefficient of examined scales should both surpass .7 to be deemed reliable (Fornell & Larcker, 1981; Nunnally & Bernstein, 1994). From table 1, it shows that the values of CR and Cronbach's  $\alpha$  coefficient of all scales of the study are greater than .7, which means that the scales adopted in formal study obtain reliability.

Table 1. Results of Item Reliability

Latent variables	Composite reliability	Cronbach's $\alpha$
SSSSC	.955	.950
RSSSC	.945	.938
SESSC	.865	.826
JBSSC	.933	.922

#### *Convergent Validity of Scales*

The purpose of convergent validity aims to understand whether the dimensions are theoretically related or not related by investigating the factor loading

between observed variables and latent variables. According to Hair, Black, Babin and Anderson (2009), scale items with factor loading lower than .5 should be deleted. This study examined the convergent validity of each scale, and

found that the factor loadings of the SSSSC were ranging from .63 to .76; RSSSC, .63 to .83; SESSC, .52 to .73; and, JBSSC, .55 to .76. All scales obtain factor loadings that are greater than .5, which indicates that all scales have good convergent validity; that is, dimensions of each scale are theoretically related (Hair et al., 2009).

#### *Discriminant Validity of Scales*

The intention of discriminant validity test aims to prove that dimensions that are not supposed to be theoretically related are indeed unrelated. The method

of testing discriminant validity is to examine the value of the square root of average variances extracted (AVE) from individual latent variables, the value should exceed the value of co variation of its latent variable and the others within the model (Chin, 1998). Also, the square root of AVE should equal to or above .50. As shown in table 2, the values of square roots of AVE of latent variables are ranging from .628 to .721. The value of square root of AVE of each latent variable is greater than the related coefficient values, this indicates that the measuring model has good discriminant validity.

Table 2. *The discriminant validity of each latent variable mode*

	Role Stress	Job Burnout	Self-Efficacy	Social Support
Role Stress	.721	.594	-.279	-.326
Job Burnout	.594	.695	-.387	-.340
Self-Efficacy	-.279	-.387	.628	.411
Social Support	-.326	-.340	.411	.708

Note: values of square roots of AVE extracted are shown diagonally.

#### *Relationship Among Role Stress, Job Burnout, Self-Efficacy, Social Support*

This study adopted Partial Least Square (PLS) as the statistical method to examine the relationships among social support, role stress, self-efficacy and job burnout of school coaches. According to Hulland (1999), the method includes two stages, structural model analysis and explanatory power.

#### *Structural Model*

Prior to the test of structural models proposed in this study, the validity and reliability of the measurement model must be ensured. When Adopting PLS as the statistical method to test the structural model, two criteria must be considered: (1) standardized path coefficients and (2) explanatory power. When standardized path coefficients achieve sig-



nificance indicates that the hypothesis of the study are supported.

### *Explanatory Power*

The  $R^2$  value represents the predictive power of the research model, that is, the percentage of the variance explained of exogenous variable to endogenous variable. A higher  $R^2$  value indicates a stronger predictive power. The results indicate that role stress could explain 38% of the variance of school coaches' job burnout (see figure 1). Role stress and self-efficacy could explain the variance explained of school coaches' job burnout by 44% (figure 2), for school coaches' job burnout, 43% (figure 3). Figure 4 reveals that role stress and social support could explain 39% of variance participants' job burnout. And, figure 5 indicates that role stress, self-efficacy and social support could explain the variance of participants' job burnout by 45%.

## Results

### *Descriptive Statistics*

The present study recruited school coaches in Taiwan as the participants of

formal study. Within these recruited coaches, 195 were males and 63 females. The age of recruited coaches, 73 coaches were under 30 years old, 129 coaches are between 30-40 years old, 38 between 41-50 years old, and 18 beyond 51 years old. And, 92 coaches were married and 166 single. Among the recruited school coaches, 175 coaches graduated with bachelor degree, and 83 with master degree. In coaching experience, 100 coaches have less than 5 years of coaching experience, 106 have been coaching for 6-10 years, 32 for 10-20 years, 20 for more than 21 years of coaching experience.

### *The Effect of Role Stress Toward Job Burnout*

The study revealed the significance of relevance between school coaches' role stress and job burnout ( $\beta_1 = .62, p < .05$ ), which also indicated positive relation (see figure 1). That is, as school coaches felt more role stress, the effect of job burnout becomes stronger. Also, role stress obtained 38% of explanatory power toward job burnout ( $R^2 = .38, p < .05$ ). Thus, the first hypothesis H1 is supported by this finding.

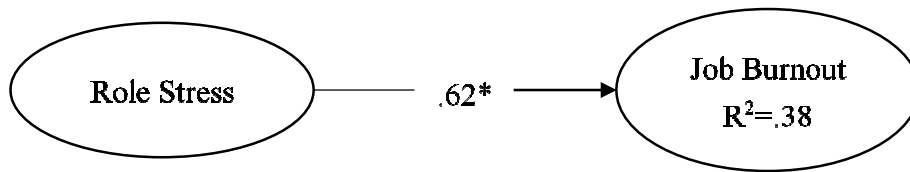


Figure 1. The effect analysis of role stress to job burnout (\* $p < .05$ )

*The Effect of Self-Efficacy Toward Role Stress and Job Burnout*

The result of the study has revealed that (1) the correlation between role stress and job burnout had achieved significance ( $\beta_2 = .48, p < .05$ ) and (2) self-efficacy obtained a significant and negative moderator effect on the relation of role stress and job burnout significance

( $\beta_3 = -.28, p < .05$ ). The predictive power of role stress to job burnout indicated 44% of explanatory power ( $R^2 = .44, p < .05$ ). This indicates that greater the school coaches' role stress is, greater the sense of job burnout (see Figure 2). However, an increasing self-efficacy could lower the impact of role stress to job burnout, thus this result supported H2.

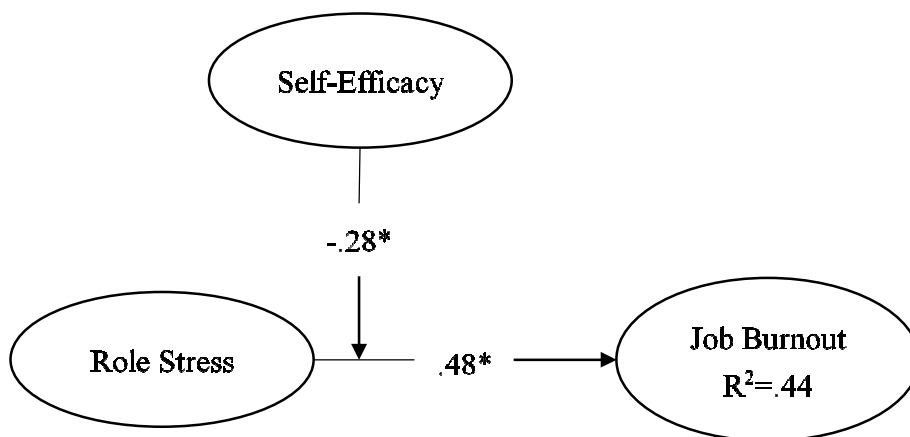


Figure 2. The moderator effect of self-efficacy on the correlation of role stress to job burnout (\* $p < .05$ ).

*The Effect of Self-Efficacy Dimensions Toward Role Stress and Job Burnout*

This study found that the moderator effect of individual coaching efficacy did not reach significance ( $\beta_4 = -.10, p > .05$ ), which failed to support Hypothesis

3. The predictive power of role stress to job burnout ( $R^2=.43$ ,  $p < .05$ ) obtained 43% of explanatory power. General coaching efficacy was found negatively moderating the correlation of role stress and job burnout ( $\beta_5 = -.24$ ,  $p < .05$ ),

which indicates that the moderator effect of general coaching diminishes the effect of role stress to job burnout (see figure 3), this result supported the Hypothesis 4 of the study.

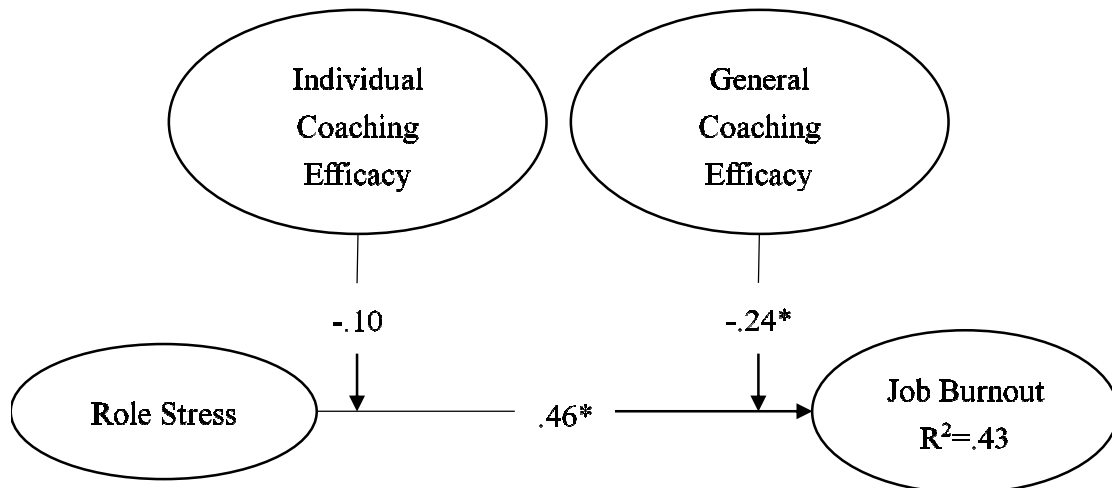


Figure 3. The moderator effect of individual and general coaching self-efficacy on the correlation of role stress to job burnout. (\* $p < .05$ )

*The Effect of Social Support Toward Role Stress and Job Burnout*

This study discovered that role stress and job burnout were significantly correlated ( $\beta_6 = .57$ ,  $p < .05$ ); however, the moderator effect of social support on the correlation of role stress to job burnout ( $\beta_7 = -.09$ ,  $p > .05$ ) did not achieve sig-

nificance. Further, on the predictive power of role stress to job burnout ( $R^2=.39$ ,  $p < .05$ ) revealed that role stress had 39% of explanatory power on job burnout (see figure 4). This indicates coaches' role stress and job burnout are positively related and the moderator variable (social support) does not influence the correlation of role stress

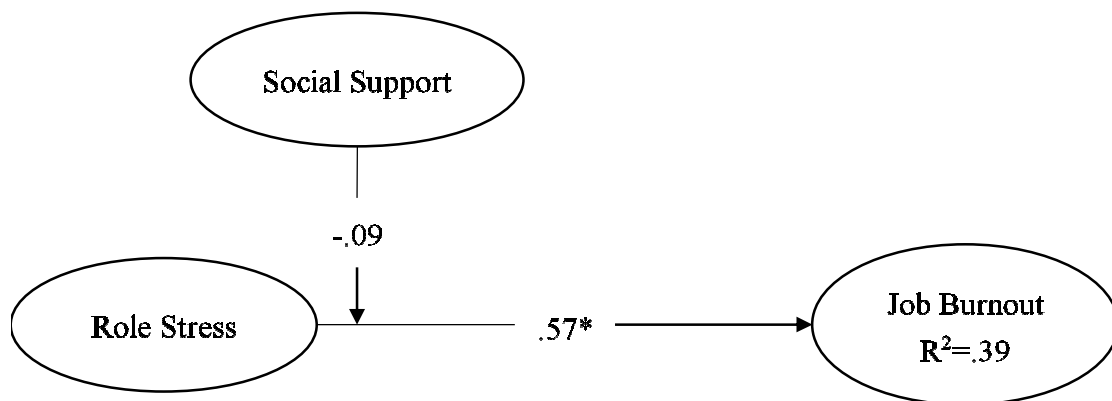


Figure 4. The moderator effect of social support on the correlation of role stress to job burnout. (\* $p < .05$ )

to job burnout, which also indicates that Hypothesis 5 is unsupported.

*The Effect of Self-Efficacy and Social Support Toward Role Stress and Job Burnout*

This study revealed that both self-efficacy and social support obtained a significant moderator effect of on the correlation of role stress to job burnout ( $\beta_8 = .51, p < .05$ ); further, the modera-

tor effect of self-efficacy was negatively significant to the correlation of role stress to job burnout ( $\beta_9 = -.32, p < .05$ ), social support obtains no significant effect to the correlation ( $\beta_{10} = -.09, p > .05$ ). Moreover, the predictive power of role stress to job burnout achieved 45% of explanatory power ( $R^2 = .45, p < .05$ ). for illustration see figure 5:

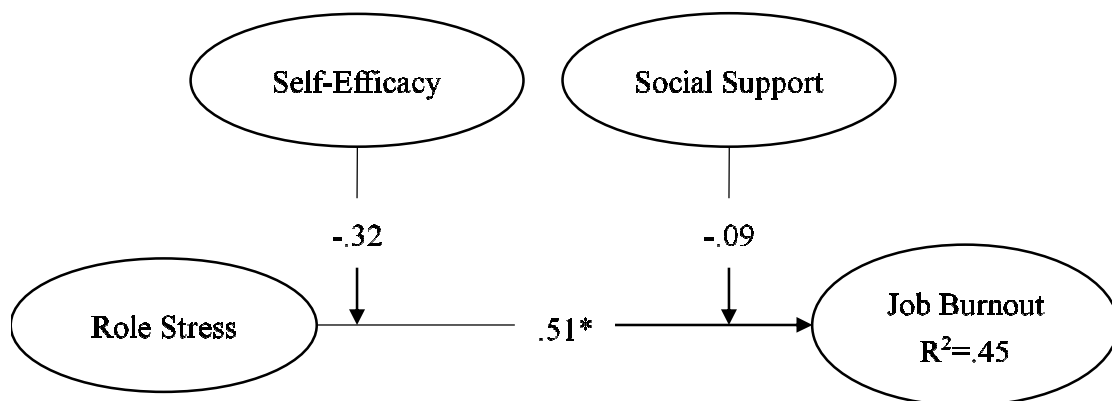


Figure 5. The moderator effect of self-efficacy and social support on the correlation of role stress to job burnout (\* $p < .05$ ).

## Discussion

It is generally accepted that school coaches' role stress is correlated to job burnout (e.g., Malinauskas, Malinauskiene and Dumciene, 2010). Hu and Chou (2013) also asserted that when school coaches are repeatedly demanded to conduct intense training on athletes over a long period of time tend to have severe job burnout. According to the results, the study affirms that school coaches' role stress has positive predictive power on job burnout and positively correlate to job burnout. The study' findings perhaps resulted in the continually increased workload and lengthened working time. Furthermore, the accumulation of demands and expectations from both superiors and public may also contributed to school coaches' role stress and job burnout.

The study was theoretically grounded on Bandura's self-efficacy theory (Bandura, 1977). According to the results of the current study, role stress is positively correlated to job burnout; and, self-efficacy obtains a reverse moderator effect on this correlation. Further, this study discovered self-efficacy and job burnout have immediate effect. That is, school coaches' self-efficacy plays a role to diminish the negative influence of role stress and job burnout.

School coaches' self-efficacy obtains two dimensions – individual coaching efficacy and general coaching efficacy. The study discovered that novice school coaches' coaching experiences and general coaching efficacy formed a positive relation, and school coaches' individual coaching efficacy accumulated as years and experiences grew. Moreover, low individual coaching efficacy tended to occur to coaches with experiences of 10 years or less. This study found that general coaching efficacy displays a negative significant moderator effect on the correlation of role stress to job burnout.

It was generally believed that social support obtains positive effect on physical and mental health, and diminishes the negative impact of job stress to an individual (House, 1981; Johnson & Hall, 1988; Thoits, 1986). Also, it was suggested that a fundamental structure formed by social support, stress awareness and job burnout obtains predictive power over job burnout (Nikolaos, 2012). However, the study results revealed that social support and job burnout are negatively correlated and do not form a significant correlation; and, social support obtains no moderator effect on the correlation of role stress to job burnout.

The outcome of analysis indicates that self-efficacy is the major influence

of school coaches' role stress and job burnout; therefore, the Hypothesis 6 is partially supported. Previous studies have indicated the reverse correlation of self-efficacy to job burnout, that is, a significant increase in self-efficacy often diminishes the negative effect of job burnout significantly (Klassen & Durksen, 2014; Rangriz, Bakhtiary, & Khak-sar, 2013). The result of present study also shares similarities with this claim. The findings of the present study reveal that social support obtains no moderator effect on the correlation of role stress to job burnout, and further inferred that the self-efficacy of school coaches is essential to role stress and job burnout.

#### Suggestion

Based on the findings, the study suggests that coaches should seek guidance from experienced coaches, improve time management and event arrangement. Since this study have discovered that role stress is one of the problematic causes that negatively effects coaches' performance and health, therefore this study suggest that coaches should redefine their roles by increasing the amount of assistance from working environment and family. Further, they should endeavor to maintain the balance between work and family by lowering the workload.

To avoid the negative effect of job burnout, this study suggest that school coaches should learn to construct reasonable expectations of their own profession and career and avoid any over simplification and idealization. By so doing, coaches can cultivate and improve their adaptability to the stress and emotional conflict in their career, as well as rational feeling and thinking. Furthermore, coaches have to construct the ability of self-counseling and seek peer counseling.

The present study discovered that school coaches' social support has no moderator effect to role stress and job burnout. However, supportive superiors, colleagues and family was found effective toward releasing of physical and psychological symptoms and stress awareness. The study suggested that coaches should participate activities that uniting superiors, colleagues and family. These activities help enhancing the communication between spouses and children, and further strengthening school coaches' social support diminishing role stress and job burnout.

This study discovers that self-efficacy of coaches is the key to efficient training. This study deems that the essence of self-efficacy is progressive and development, rather than the traditional view of coaching experience accumula-

tion. In the competitive environment of sports, emphasizing self-efficacy among coaches is inevitable, therefore coaches should not only seek improvements in training skills but also improvements on the awareness, self-control, as well as the confidence to enhance overall self-efficacy.

The study adopted questionnaires to examine the correlations and moderator effects of role stress, social support, self-efficacy and job burnout of school coaches in Taiwan. Although this method is time-saving, easy to predict,

however, limitations still exist. For instance, it was difficult to discover details of coaches' thoughts about their social support and self-efficacy. Thus, it was suggested that other than questionnaires, interviews or participation observations could be made to probe into the opinions of coaches. Regarding role stress and job burnout, the present researcher deems that future questionnaires should include open questions or interviews to understand the details of causes of job burnout, thus provide administrators and counselors with references to avoid serious effect of job burnout.

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THE STUDY OF THE INFLUENCING FACTORS FOR ETHICAL  
BEHAVIOR INTENTION OF HR PROFESSIONALS: THE  
EVIDENCE FOR THE THEORY OF REASONED ACTION

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Abstract

The purpose of this study is to review Professional HR behavioral intentions in work ethics. The collected data is analyzed based on TRA (theory of reasoned action, Ajzen & Fishbien) to explain their work ethic intentions. In other words, the association of their work ethic behavioral attentions between multidimensional ethical cognition and human resource management norms was verified through ethical judgment.

The scale is produced under constructs of multidimensional ethical cognition system, organizing human resource management norms, ethical judgment and ethical behavioral intentions. The model is designed to predict and explain ethical intentions based on the personal multidimensional ethical cognition and organizational HRM norms. The surveys were distributed to 310 HR professionals in Southern Taiwan companies and 305 were returned. The model was tested using SPSS and SmartPLS. The results

indicated that HRM ethical judgment positively contribute to multidimensional ethical cognition and HRM norms significantly and positively impact on ethical behavioral intentions. The findings support the research model and serve the professionals' understanding of the behavioral intention of HRM ethics in Taiwan.

Keywords: professional ethics, theory of reasoned action, Multidimensional ethical cognition, justice, deontology

*(Editor's Note: See all figures and tables at the end of this article.)*

## Introduction

Professionalization of Human resource management (HRM) has received much attention in the past twenty years. Despite the relevance of professionalism as a construct in all disciplines, HR professionals play a unique role in that they work as employees of an organization as well as counsel for their employers. Elements of professionalism include demonstration of espoused values in doing the right thing and making the right decision. In fact, it is fair to assert that the essence of professionalism today is the act of service. This realization explains why the issue of professional ethics of HRM is becoming increasingly important. Due to the ongoing consideration of the ethical nature of HRM, the recent research has focused on understanding the factors that influence ethical conduct in organizations. Greenwood (2013) argues for a deeper analysis of ethical issues in HRM. Most ethical decision making models propose that ethical conduct is influenced by a combination of contextual factors such as reward systems, rules, and codes, and individual characteristics such as values and ethical cognition (Trevino, 1986; Ferrell, Fraedrich, & Ferrell, 2005 ; Gama, Peticca-Harris, 2012). The theory of reasoned

action (TRA) is the model designed to predict and explain ethical intentions based on an individual's attitudes and norms.

The TRA places intention as the immediate antecedent of behavior, thus, the stronger the intention is, the more corresponding behavior is likely to occur. Determining intentions are attitudes and subjective norms (Ajzen & Fishbein, 1975, 1985, 1991; Celuch & Dill, 2011). The TRA has received support across a range of contexts (Sheppard, Hartwick, & Warshaw, 1988; Celuch & Dill, 2011).

The collected data is analyzed based on TRA (theory of reasoned action, Ajzen & Fishbien) to explain and predict ethical intentions based on the personal multidimensional ethical cognition and organizational HRM norms.

## Theory of Reasoned Action

Fishbein & Ajzen (1975) have described that Theory of Reasoned Action (TRA) predicts the behavior of a person by factors such as beliefs, attitudes, and intentions. Madden, Ellen & Ajzen (1992) pointed out that Fishbein & Ajzen proposed the theory of reasoned action in 1975. This theory provides a framework to study attitudes

toward behaviors. The individual's intention to perform a behavior is a combination of attitude toward performing the behavior and subjective norm. Fishbein & Ajzen (2010) said that in 1975 proposed the theory of reasoned action, personal intent is affected mainly by the individual's nature and reflect the influence of society. Personal factors are primarily about the perception of behavioral intentions that are attitudes. As for the intention, it is the personal feel of the pressure due to instructions. These factors are called norms.

Celuch & Dill (2011) found a decisive factor in the possibility of promoting the researchers' behavioral intentions and final behavior. One of which incorporated the ethical judiciary into the TRA model, extending the concept of planned behavioral theory for ethical decision making to adaptation and to rational behavior theoretical model. This model combines with the attitude and ethical decision-making framework. In this model, whether to decide to engage in ethical disputes will be affected by the following factors: the attitude of this behavior, the subjective norms of this behavior, behavioral norms and the behavior of these ethical judgments. Attitudes, subjective norms, and behavioral norms are regarded as direct causes of ethical judgment. Ethical judgment, subjective norms and codes of conduct are also identified as directly affecting behavioral intentions.

Hunt & Vitell's (1986) research model concept is to evaluate the results and the important stakeholder as an ethical judgment. Cherry (2006) found that supportive subjective norms have an influence on the intention. Other

findings also indicate that norms are independent predictors of intent and behavior (Nucifora, Gallois, & Kashima, 1993). In addition, normative effects have also been shown to have an impact on ethical behavior (Chassin, Presson, Sherman, Corty, & Olsavsky, 1984; McAllister, Krosnick, & Milburn, 1984), both of which indicate that norms have a direct impact on ethical intent. Celuch & Dill (2011) extends the understanding and validation model of ethical decision-making through theory of reasoned action (TRA) and other structures. This model includes norms, attitudes, ethical judgment, and intention.

Celuch & Dill added ethical judgments to the TRA model in the study and found that ethical judgments had a strong predictive power for intent, as did in the Cherry (2006) study. From a practical point of view, TRA provides a leverage that affects intention and behavior. The above mentioned attitude towards behavior is a very strong predictor of ethical judgment.

Based on prior literature review, this study proposed that multidimensional ethical cognition and HRM norms toward the act would be significantly related to the ethical judgment. The ethical judgment of the act would be significantly related to the behavioral intention. See Figure 1. (Note: See all Figures & Tables at the end of this article).

## Method

### *Sample and Procedure*

The surveys were distributed to 310 HR professionals in Southern Tai-

wan companies and 305 responses were received from both paper and online forms. HR ethical scenarios and HRM norms were included in the questionnaire. HR ethical scenarios are used in general functions in the HR field and norms reference by Wooten (2001). HR professionals were instructed to read the scenarios and to answer the questionnaires.

### Measures

Consistent with the proposed model, measures employed in the questionnaire consisted of scales developed specifically for constructs applicable to the act portrayed in each ethical scenario and HRM norms of questions. The questionnaires included measures related to multidimensional ethical cognition toward the act and HRM norms, ethical judgment of the act, and behavioral intention with respect to the act. In this study, we used multi-item scales for all variables with the exception of ethical behavioral intention.

Based on the Theory of the Reasoned Action and multidimensional ethical cognition, this study attempted to explore the relationship between the multidimensional cognition ethics, the ethical judgment and ethical behavioral intentions. The quantitative study included the designed questionnaire with the scale compiled construct from multidimensional cognition ethics, ethical judgment and ethical behavioral intentions. With references to the five ethic theories: The Theory of Justice; Relativism; Egoism; Teleology and Deontology from Multidimensional Ethics Scale (MES) developed by Reidenbach & Robin (1990).

The interview with HR professionals adopted on-site experiences among HR professionals in Taiwan. Thirteen relative ethical dilemma scenarios were drafted to describe the contexts for measuring the ethical cognition of the HR professionals. Following the interview, three scenarios with eighteen items were selected. Then, a survey was conducted with the interviewees with these questions. MES toward the act portrayed in scenario 1 consisted of 18 questions items, with respondents providing perceptions of the likelihood of the possible outcomes and the corresponding importance of those outcomes relating to the behavioral intentions in the questionnaire.

According to Wooten (2001), ethical dilemmas in human resource management can be seen as multifaceted, involving organizations, personal and professional considerations. Five ethical dilemmas are applied to eight HRM functions to develop the organizational HRM professional ethics scale. HRM norms of 38 items on a scale of 1 to 5, involved respondents providing perceptions of the likelihood of the possible outcomes and the corresponding importance of those outcomes relating to the behavioral intentions in questionnaires.

After the scale was reviewed by experts and scholars, inappropriate items were deleted and made the scale more clear. We used SPSS and SEM-PLS to analyze and verify.

### Results

In this section, the distribution of effective questionnaires collected from the samples were described as the fol-

lowing: industry, number of employees, academic background of employees, background of the study, years of work of HR, and whether they are licensed workers, also whether they are willing to accept profession-related education and other items after HRM work, such as Table 1 & Table 2. (NOTE: See all Tables and Figures at the end of this article).

### Reliability and Validity

The construction of the items is based on the literature review. We explored the relevant research and designed a scale for the ethical dilemma scenarios and HRM norms. After the experts and scholars reviewed the scale, we deleted the inappropriate items and made the scale have a better content validity

Reliability analysis is the reliability of the measurement results based on the analysis of the Cronbach's  $\alpha$ . In this study, the Cronbach's  $\alpha$  of each analyzed items is more than 0.5, which shows that the construct of all the items are acceptable (Nunnally, 1978).

The average variation of the constructs of number extraction capacity are more than 0.5, which indicates there is a good convergent validity. Reliability and potential structure of reading are more than 0.7. The high reliability consists of the measurement variables that are highly correlated, which constructs the internal variables with good consistency. (see Table 3.)

### Model Verification

After conducting SEM-PLS, it is found that, in multi-dimensions ethical cognition, the path coefficient of justice (0.235) and the path coefficient of

deontology (0.736) were significant, revealing that these two theories have significant influence on HRM ethical judgment. And, in HRM ethical Norms, only the path coefficients of misuse of data (0.156) is significant related with HRM ethical judgment, demonstrating that the correct use of HRM data in the HRM specification has an impact on the professional ethics assessment. The path coefficient of ethical judgment and ethical behavioral intentions is (-0.545). The results of the whole model indicated that there is a significant relationship between ethical judgment and behavioral intention. Ethical judgment ( $R^2=0.823$ ) had a high predictive power whereas ethical behavioral intention ( $R^2=0.297$ ) had a predictive power (Figure 2).

Path coefficient, sample mean, Standard Deviation, t value, P value are presented in Table 4. The path coefficient is a measure of the potential variables that directly affect the external. Potential variables may also be seen through other variables on the dependent variable of potential indirect impact.

Direct effects and indirect effects, two different effects can be obtained through the path coefficient calculation, and the sum of direct and indirect effects is called the overall Effect (Total Effects).

In terms of direct effect, the deontology theory (0.736) is the most important direct effect for the theory of justice on the judgment ethics; the second is the deontology (DEO, 0.235). There is no significant correlation among the rest of the organization. The correct use of the HRM norm (0.156) in the organization is the most signifi-



cant effect on the evaluation of professional ethics; the rest were not significantly correlated, as shown in Table 5

### Conclusion and Discussion

The main theoretical contribution of this research has been conducted with the perspectives of Multidimensional Ethical Cognition and theory of reasoned action (TRA). The difference is that the perspectives of ethical judgment included in this research took in a reference of Cleuch & Dill (2011), who included ethical judgment in TRA model and found out that ethical judgment has a strong prediction on intention. Therefore, this study developed multidimensional ethical cognition, organizational HRM norms and professional ethical behavioral intention. Based on the construct, this research discusses the relationship among multidimensional ethical cognition, HRM professional judgment and behavioral intention of HRM ethics. From a practical point of view, TRA plays a role of leverage to influence intentions and behaviors. How an individual makes an ethical or unethical decision has always been an issue that needs attention from business researchers. We hope that this research is able to contribute to future practices in a rational way. We also anticipate that in the near future, related researches could propose delicate insights on the cognition of how individuals make their decisions based on work ethics.

The purpose of this study is to expand the understandability toward the factors that influence ethical behavior intentions of HRM. We examine

the professional ethics of HRM by drawing on the theory of reasoned action (TRA). Abbott (1983, 1988) pointed out that codes of ethics are the key criteria to the establishments of professional group. Codes of ethics enable professional groups to prevent possibilities of unethical deeds, tie the stand of professionals and promote the trust between reputation of professionals and the public (Frankel, 1989).

When facing different types of work related ethical situations, according to different ethical cognition and scenarios, people hold different ethical. Moreover, the role of HRM is composed of professional administrators to strategy partners, revolutionists of organizations and supporters of employees. It does not settle down professional ethics issues effectively. Therefore, the perspectives as well as decisions should depend on a case-by-case basis rather than a particular perspective that applies for all the issues. There are only a few ethics researches conducted in HRM. This research has proposed the following research directions for future research references: First, the research subjects are HRM specialists in southern Taiwan. This research can be verified that the ethical cognition among HRM specialists with different cultural backgrounds to see if these cultural backgrounds influence their ethical cognition. Second, further studies of Ethics in HRM are necessary. This issue is a sprouting topic and we need more related researches conducted. It is possible to propose related norms to promote the value of HRM ethics within organizations.

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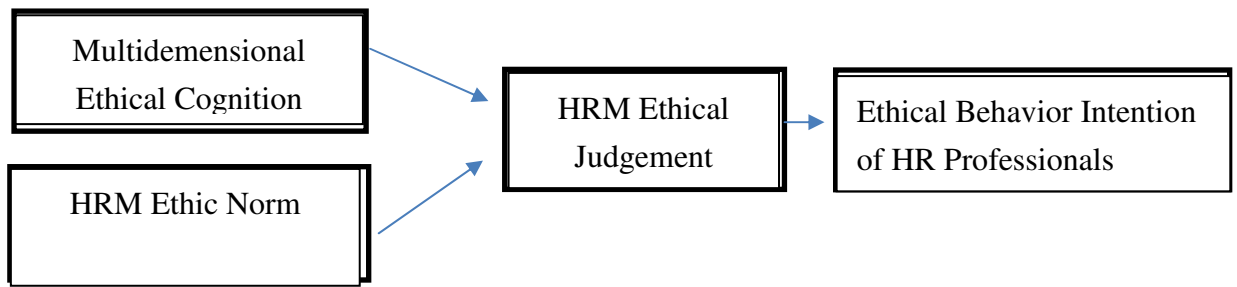


FIGURE 1. The Research Model Of The Ethical Behavioral Intention Of Professional HR

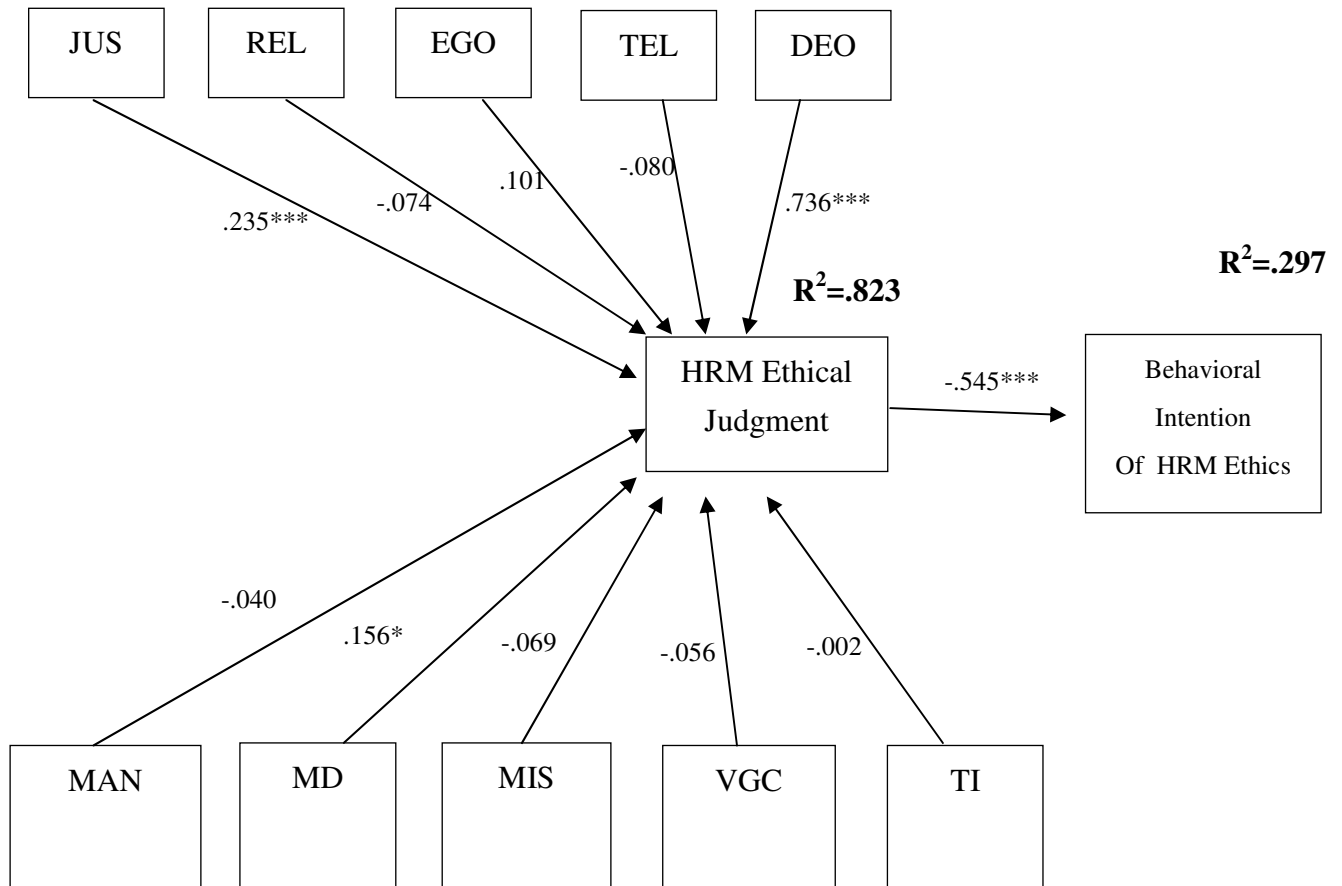


Figure 2. Based On The Theory Of Reasoned Action (TRA), The HRM Professionals' Ethical Intentions Are Determined By The Multidimensional Ethical Cognition And HRM Norms.

Table 1. Sample Description

	Items	Numbers	Percent
Industry	Traditional manufacturing	109	35.7
	Electronic industry	50	16.4
	Service industry	46	15.1
	Machinery industry	29	9.5
	chemical industry	18	5.9
	Others	52	17
Number of employees	100 and below	95	31.1
	101~ 200	46	15.1
	201 ~500	54	17.7
	500 and above	105	34.4
academic background of employ-	High school	57	18.7
	Colleague	133	43.6
	Master	107	35.1
	PhD	4	1.3
background of the study	HRM、 LR	141	46.2
	business	100	32.8
	Science and engineering	36	11.8
	Others	26	8.5
years of work of HR	5years and below	76	24.9
	5~10 years	68	22.3
	10~15 years	74	24.3
	15 years and above	81	26.6

Total sample number N = 305; Sample statistics below N = 305 items, because the subjects based on personal privacy or other factors did not answer.

Table 2. Descriptive Statistics And Correlations

	construct	Mean	SD	ME					HN					JU	BI
				JUS	REL	EGO	TEL	DEO	MAN	MD	MIS	VGC	TI		
ME	JUS	5.319	1.050	1											
	REL	4.719	1.072	.757***	1										
	EGO	4.797	1.021	.759***	.788***	1									
	TEL	4.410	1.010	.632***	.726***	.830***	1								
	DEO	5.181	1.008	.807***	.742***	.763***	.695***	1							
HN	MAN	4.175	0.621	.041	.107	.064	.062	.099	1						
	MD	4.314	0.638	.048	.094	.069	.040	.117*	.897***	1					
	MIS	4.323	0.636	.168**	.130*	.137*	.077	.182**	.740***	.779***	1				
	VGC	4.249	0.690	.055	.089	.057	.038	.103	.839***	.867***	.715***	1			
	TI	4.219	0.602	.019	.093	.063	.043	.080	.876***	.865***	.679***	.828***	1		
JU	5.433	1.041	.797***	.666***	.716***	.596***	.889***	.069	.097	.150**	.078	.050	1		
BI	35.135	19.254	-.552***	-.524***	-.578***	-.542***	-.584***	-.062	-.075	-.127*	-.107	-.060	-.562***	1	

P.S: JUS (Justice),REL(Relativism),EGO (Egoism ),TEL (Teleology ), DEO (deontology), MAN(Misrepresentation and Collusion(MAN), MD(Misuse of data), MIS (Manipulation and coercion),VGC(Value and goal conflict), TI (Technical ineptness), JU (Ethical Judgment),BI (Behavioral Intention) ME(Multidimensional Ethics), HN(HRM Norms)

Table 3. Reliability and Validity

	Construct	CR	AVE	Cronbach's $\alpha$
Ethics(ME) Multidimensional	Justice (JUS)	0.949	0.862	0.920
	Relativism (REL)	0.915	0.729	0.881
	Egoism (EGO)	0.893	0.736	0.822
	Teleology (TEL)	0.944	0.850	0.913
	Deontology (DEO)	0.919	0.791	0.868
HRM Norms (HN)	Misrepresentation and Col- lusion (MAN)	0.762	0.520	0.564
	Misuse of data (MD)	0.897	0.597	0.884
	Manipulation and coer- cion (MIS)	0.885	0.526	0.867
	Value and goal conflict (VGC)	0.876	0.640	0.837
	Technical ineptness (TI)	0.901	0.535	0.892
	JU (Ethical Judgment)	0.760	0.516	0.525
	BI (Behavioral Intention)	0.793	0.561	0.610

\*\*\* p<0.001 · \*\* p<0.01 · \* p<0.05



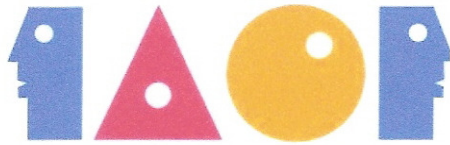
Table 4. Path Coefficients

		Original Sample (O)	Sample Mean (M)	STDEV	T value	P value	R2
ME	JUS -> JU	0.235	0.231	0.065	3.604	0.000***	0.823
	REL -> JU	-0.074	-0.075	0.061	1.207	0.228	
	EGO -> JU	0.101	0.105	0.070	1.450	0.147	
	TEL -> JU	-0.080	-0.080	0.049	1.653	0.098	
	DEO -> JU	0.736	0.734	0.061	12.093	0.000***	
HN	MAN -> JU	-0.040	-0.015	0.053	0.763	0.446	
	MD -> JU	0.156	0.112	0.078	2.007	0.045*	
	MIS -> JU	-0.069	-0.057	0.045	1.543	0.123	
	VGC -> JU	-0.056	-0.037	0.052	1.070	0.285	
	TI -> JU	-0.002	-0.007	0.062	0.027	0.978	
	JU -> BI	-0.545	-0.549	0.043	12.666	0.000***	0.297

\*\*\*p<0.001, \*\*p<0.01, \*p<0.05

Table 5. Research Model Effects of Direct, Indirect and Total

Variable		Variable	Direct effects	Indirect effects	Total Effects
JU	ME	JUS	0.235	N/A	0.235
		REL	-0.074	N/A	-0.074
		EGO	0.101	N/A	0.101
		TEL	-0.080	N/A	-0.080
		DEO	0.736	N/A	0.736
	HN	MAN	-0.040	N/A	-0.040
		MD	0.156	N/A	0.156
		MIS	-0.069	N/A	-0.069
		VGC	-0.056	N/A	-0.056
		TI	-0.002	N/A	-0.002
BI	ME	JUS	N/A	-0.128	-0.128
		REL	N/A	0.040	0.040
		EGO	N/A	-0.055	-0.055
		TEL	N/A	0.044	0.044
		DEO	N/A	-0.401	-0.401
	HN	MAN	N/A	0.022	0.022
		MD	N/A	-0.085	-0.085
		MIS	N/A	0.038	0.038
		VGC	N/A	0.031	0.031
		TI	N/A	0.001	0.001
			JU	0.545	N/A



AUTONOMY AND CREATIVITY OF PROFESSIONAL TELE-  
WORKERS: THE MEDIATING ROLE OF CREATIVE  
SELF-EFFICACY

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Abstract

Telework as a new and flexible form of working is becoming increasingly popular among professional employees. Notwithstanding the rapid growth of telework among the professional employees, their creativity is surprisingly under explored. Following this gap the present study was intended to examine the effect of autonomy on creativity of professional teleworkers through creative self-efficacy. We conducted a web survey with a self-administered questionnaire among the professional employees engage in telework in software developing companies, Sri Lanka. The survey resulted in 132 effective responses. The results showed that the positive and significant impact of autonomy on creativity of professional teleworkers. Creative self-efficacy fully mediated the effect of autonomy on creativity. This study extends the views of componential theory and self-regulation theory in the context of telework. We discuss the implications of the findings as well.

Key words: creativity, autonomy, creative self-efficacy, telework, professional teleworkers

## Introduction

Organizations ability to unleash employees' creativity is concerned as a key to success in dynamic environment. Creativity refers to "products, ideas, or procedures that satisfy two conditions; (1) they are novel or original and (2) they are potentially relevant for, or useful to, an organization" (Oldham & Cummings, 1996, p. 608). The individual creativity is at the heart of subsequent organizational innovations (Oldham & Cummings, 1996; Shalley & Gilson, 2004). In recognizing the critical role of individual creativity, there have been studies that examined creativity at individual level (e.g., Gong, Huang, & Farh, 2009; Perry-Smith and Shalley, 2003; Liu, Jiang, Shalley, Keem, & Zhou, 2016; Shalley, Gilson, & Blum, 2009; Volmer, Spurk, & Niessen, 2012).

Telework has become a popular form of working due to the widespread usage of computers and internet. Telework refers to "an alternative work arrangement in which employees perform tasks elsewhere that are normally done in a primary or central workplace, for at least some portion of their work schedule, using electronic media to interact with others inside and outside the organization" (Gajendran & Harrison, 2007, p. 1525). At present many professional employees engage in telework (Taskin & Bridoux, 2010). Creativity is "particularly [important] for the professional worker who uses unseen and unobservable inputs like intellect, the ability to incorporate unique and effective twists should help him or her stand out from the crowd" (Perry-Smith & Shalley, 2003, p. 89). Given the importance of creativity for the professional employees, it is worth

to examine the creativity of professional employees who engage in telework. Accordingly, the objective of this study is to examine the creativity of professional teleworkers.

## Literature Review

### *Autonomy at Telework and Creativity*

Teleworkers perceive greater autonomy than non-teleworkers (Gajendran & Harrison, 2007). According to job enrichment perspective professional employees experience more autonomy at telework (Olson & Primps, 1984). Succinctly, telework instrumental job autonomy is a key theme that repeatedly appears in telework literature (Gajendran & Harrison, 2007; Gajendran, Harrison, & Delaney-Klinger, 2015).

Amabile's (1983) componential theory is considered as a dominant model of creativity. Componential theory describes stimulants of creativity. According to componential theory, autonomy is a crucial stimulant of creativity. Job autonomy "refers to the extent to which an employee can determine the pace, sequence, and methods to accomplish tasks" (Volmer et al., 2012, p.458). Jobs with more autonomy foster creativity since it encourages risk taking and alternative thinking when compared to less autonomous jobs (Oldham & Cummings, 1996). Job autonomy is vital for creativity specifically when people engage in complex jobs (Shalley & Gilson, 2004). Therefore, the greater autonomy experienced at telework can enhance the creativity of professional teleworkers. Consequently, the following hypothesis is developed.

H1: Autonomy positively impacts on creativity of professional teleworkers

*Creative Self-efficacy as a Mediator in between Autonomy and Creativity*

According to social cognitive theory, human behaviour is extensively regulated by ongoing exercise of self-influence (Bandura, 1991). Doing so, self-efficacy plays a vital role as a self-regulation mechanism. Self-efficacy is “people’s belief about their capabilities, to exercise control over their own level of functioning and over events that affect their lives” (Bandura, 1991, p.257). Succinctly, self-efficacy is considered as a more central and pervasive self-regulation mechanism (Bandura, 1991). Drawing the insights of Bandura’s social cognitive theory, Tierney and Farmer (2002) tested and validated the construct of creative self-efficacy. Creative self-efficacy is “the belief one has the ability to produce creative outcomes” (Tierney & Farmer, 2002, p. 1138). Moving ahead in highly uncertain and complex creative journey requires a necessary belief of self-confidence as initially shown by Bandura (1991) and then extended to creative self-efficacy by Tierney and Farmer (2002). Employees those who report high creative self-efficacy keep them strongly and persistently attached towards the creative target amidst the difficulties. As such creative self-efficacy was found to be a more overarching variable that nourishes creativity (Gong et al., 2009). Therefore, creative self-efficacy serves as an important precursor for creativity (Tierney & Farmer, 2002; Gong et al., 2009).

Creative self-efficacy is a state-

like construct that can be enhanced by contextual factors (Mathisen, 2011). Autonomy is a job related contextual factor which can enhance the creative self-efficacy (Liu et al., 2016; Mathisen, 2011). Creative-self efficacy was found to be a mediator in the relationship between transformational leadership and creativity (Gong et al. 2009). Also, Liu et al. (2016), found that creative self-efficacy as a mediator between autonomy and creativity. These evidences show that the creative self-efficacy as a mechanism through which autonomy impacts on creativity. Therefore, based on the above discussion, we propose;

H2. Creative Self Efficacy mediates the effect of autonomy on creativity of professional teleworkers.

### Methods

We conducted a web based survey with a self-administered questionnaire. A cross sectional data collection was done during the period of March-May 2017. We adopted convenience and referral sampling techniques to select respondents. The survey link was sent and shared among the professional teleworkers in software developing companies in Sri Lanka. The participants were assured the anonymity of the data. A total of 132 professional employees those who engage in telework in software developing companies completed our survey.

The sample comprised of 78 software engineers, 33 system analysts and 21 project managers. In the sample 103 (78%) were male and 29 (22%) were female. 31 (24%) of the participants were 18-24 years old, 77 were 25-34 (58%) and 24 (18%) were more

than 35. Within the sample 16 (12%) participants worked in the organization for less than 1 year, 62 (47%) for 2-3 years, 33 (25%) for 4-5 years, and remaining 21 (16%) worked more than 5 years.

### *Measurements*

All of the constructs of the present study were measured by using 7-point Likert scale ranging from 1 = very strongly disagree to 7 = very strongly agree. Creativity was measured by using three items (“The work I produce is creative”, “The work I produce is original”, and “The work I produce is novel”) developed by Oldham and Cummings (1996). Participants rated how they feel the level of originality and creativity of the outcome that they produced. Following previous studies, we also used self-reported creative performance (e.g., Shalley et al., 2009). Self-reported creativity is more suitable since the focal person is the one who really feels his/her own creativity (Shalley et al., 2009).

Job autonomy was measured by using three item autonomy/self-determination scale (e.g., “I have significant autonomy in determining how I do my job”) developed by Spreitzer (1995). Creative self-efficacy was measured using three items (e.g., “I have confidence in my ability to solve problems creatively”) developed by Tierney and Farmer (2002).

### *Results*

Table 1 presents the Cronbach’s alpha coefficient, means, standard deviations, and correlations of the constructs. The Cronbach’s alpha coefficients for all of the constructs were

higher than 0.7 proving the reliability of measurement scales.

### *Results of Confirmatory Factor Analyses*

The present study employed confirmatory factor analyses (CFA) and path analysis by using Amos 16.0 to assess the proposed model. We evaluated the model with RMSEA and  $\chi^2/df$ . As a threshold level, RMSEA below 0.08 and  $\chi^2/df$  less than 2 indicate an acceptable fit. RMSEA of the model was 0.07 and  $\chi^2/df$  was 1.6. Further, the model was evaluated with relevant fit indices (i.e., NFI, CFI, TLI, and IFI). The above fit indices greater than .9 indicate a good fit. The present model reported NFI = 0.93, CFI = 0.97, TLI = 0.96, IFI = 0.97, indicating that the model adequately fit the data.

### *Results of Hypotheses Tests*

H1 proposed that autonomy positively impacts on creativity. Results revealed a positive effect of autonomy on creativity before entering creative self-efficacy ( $\beta = .22, p < 0.05$ ). Therefore, the H1 was supported. H2 proposed that creative self-efficacy mediates the effect of autonomy on creativity of professional teleworkers. First, there was a positive effect of autonomy on creative self-efficacy ( $\beta = .21, p < 0.05$ ). Second, creative self-efficacy had a positive impact on creativity ( $\beta = .32, p < 0.01$ ). Once creative self-efficacy was entered as the mediator, the direct impact of autonomy on creativity was turned to insignificant ( $\beta = .15, p = 0.06$ ). Therefore, creative self-efficacy serves as a full mediator between autonomy and creativity. Thus,

Table 1. Reliabilities, means, standard deviations and correlations among the variables

Variable	$\alpha$	M	SD	1	2
1. Autonomy	0.82	5.05	.83		
2. Creative self-efficacy	0.79	5.59	.70	.21*	
3. Creativity	0.91	5.04	.95	.22*	.35**

Note. \*\*  $p < 0.01$ ; \*  $p < 0.05$  (2- tailed)

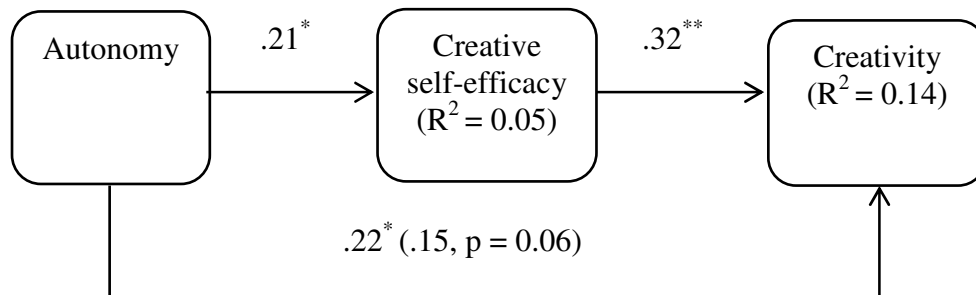


Figure 1. Research Model (\*\*  $p < 0.01$ ; \*  $p < 0.05$ )

H2 was supported. These results are reported in Figure 1 above.

### Discussion

This study intended to examine the creativity of professional teleworkers. The results of the path analysis provided basic support to the appropriateness of autonomy (i.e., views of componential theory) and creative self-efficacy (i.e., views of social cognitive theory) in understanding the creativity of professional teleworkers of Software developing companies in Sri Lanka. First, the findings of the present study highlight the importance of telework with regard to creativity of professional employees. In contrast to the office environment, telework environment has reduced informal communication and trimmed down social interactions other than the communication mediated by technologies. In particular, the greater autonomy associate with telework helps to enhance the creativity of professional employees. Second, creative self-efficacy fully mediated the effect of autonomy on creativity. This finding confirms creative self-efficacy as a mediator in between the direct variable and creativity (Mathisen, 2011; Liu et al., 2016). Social cognitive theory (Bandura, 1991) provides the basis for answering the question as to why employee becomes creative when he or she receives autonomy at telework. In accordance with the views of social cognitive theory our study confirmed creative self- efficacy as a reason behind the creativity of professional employees when they receive higher autonomy at telework.

### Limitations and Implications

Some limitations exist in the present study. First, we collected data from professional teleworkers of the software developing companies in Sri Lanka. Hence, generalizability of the findings in other contexts can be limited. Thus, future research can replicate the present study in other contexts. Second, this study employed cross sectional research design. Hence, this might hinder the assumption of causality. In order to establish causality, future research may embark on longitudinal studies. Third, self-report method might reduce the validity of the data due to the common source bias. Future research can avoid such biases through collecting data from multiple sources.

In spite of these limitations, the present study has important implications. First, still both employees and managers believe the physical presence in the organization regardless of the benefits associated with telework. The present study provides some fresh evidence to alter such negative perceptions. Second, in the developed context telework is becoming increasingly popular. However, the popularity is not equal across the globe. The present study was conducted in Sri Lanka, which is considered as a developing country. This study brought empirical evidence to support the appropriateness of telework in fostering creativity. Hence, our study would be an eye opener for both practitioners and researchers to rethink on telework, particularly in developing context.



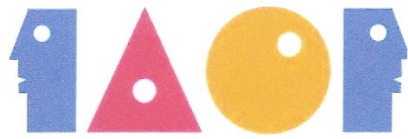
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TO EXPLORE THE ENVIRONMENTAL MANAGEMENT, RAISING  
PROCESSES AND MARKETING CHANNELS OF AQUACULTURE  
THROUGH PARTICIPATION OBSERVATION AND DEPTH  
INTERVIEW: A CASE STUDY OF BARRAMUNDI IN  
TAINAN, TAIWAN

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Abstract

Taiwan has a wealth of aquatic resources and with a very deep potentiality for fisheries production due to the island is surrounded by the sea. In response to consumer awareness of aquatic quality and market demand, fishery cultivation skill has been continued to progress in recent years in Taiwan. It is relatively important, therefore, on ecological farming plan, integrate ecological management of environmental management, breeding process and logistic access. In this study, an ecological farmer, Mr. Dingxin Wang (hereinafter referred to as "Mr. Wang"), in Tainan, Taiwan, as a case. With using observation and interview method to explore the marketing channel, environmental management, aquaculture process of ecological aquaculture for barramundi. Mr. Wang used to take "wholesale purchase" as his logistic and sale channel. To be purchased by the wholesaler. The quality of environmental management will be affected by the marketing model such as fishery oxygen content, hygienic management, etc. In other words, those factors will affect the fish meat, the smell of fish and other quality. Therefore, the study showed that it is relative important on aquaculture process and method for barramundi.

Keywords: Barramundi, Market Channel, Ecological Aquaculture, Depth Interview

## Introduction

### *Research Background and Motivation*

The growth of fish farming technology, usually are required by the high temperature, for subtropical Taiwan is very mature, such as barramundi which with short raising time and the high rate of meat, are more popular by aquaculture producer. The price of barramundi is inexpensive, and its quality is poor. Although it can grow fast under the low salinity, the meat is relatively loose. This has a considerable impact on the barramundi aquaculture industry in Taiwan. Moreover, some professional on barramundi aquaculture industries are not seeking sophisticated.

The fact was that the aquaculture producer sold a large number of barramundi to the wholesaler with low prices to increase their profits as long as the fish as less bitter and algae taste. However, the consumers began to love the high quality value fish followed by the economic take-off and the increased income.

Mr. Dingxin Wang (hereinafter referred to as Mr. Wang), an aquaculture producer in this case study, has begun his aquaculture in 2003. His father was also an aquaculture worker, so Mr. Wang contacted with aquaculture when he was in childhood. Due to his siblings had no ambition to take aquaculture industry, Mr. Wang decided to return home to take over it and transformed his way from professional aquaculture to ecological aquaculture because he was lack of huge capital. Mr. Wang committed to raise the barramundi with fleshy and without the algae smell.

Barramundi is very popular in Taiwan cuisine, it also a general nutritional supplements for Taiwan people. But less quality, fleshy loose and poor taste, barramundi was often bought by the consumers in a not so good taste comparing with the wild barramundi. This study explored the concept of "ecological aquaculture", if barramundi raised at the aquaculture farm, with solid fleshy and without the algae smell, could be able to match the wild perch. And summer is the most suitable raising time for barramundi, it shall be in 6 months to raise the adult barramundi.

Mr. Wang has continually adjusted both in raising and environmental management and he did not care about the time cost due to the barramundi could not be raised throughout the whole year. Mr. Wang also sold his fish to the traditional market and developed the home delivery channel by himself in addition to the wholesale purchase. The process of his efforts and results are the motivations of this study.

#### The Scope and Purpose

This study required the real interviews and observations due to the lack of relevant literatures on the ecological management and raising record in Taiwan. More in-depth aquaculture results could be found during the interviews. The study selected an ecological aquaculture of barramundi in southern Taiwan to conduct the field observation and visiting, and to participate the actual raising process, aquaculture methods and understanding the sale channels.

#### Literature Review

##### *Survey of Barramundi Aquaculture of Taiwan*

The major raising areas of barramundi in Taiwan are under the south

of Chiayi where the higher temperature could be suitable for the barramundi fish. The rapid growth and less sickness had made the barramundi amount to reach the peak in 1992 to 1995. But the domestic market could not meet the excess production. The fish prices even had been fallen to the edge of the cost, making a lot of fishers lose money, because of imbalance in production and marketing, many barramundi producers had been withdrawn the market after 1998. Barramundi industry was in a bottom condition in 2000, export companies actively found a new way out for the industry. The barramundi aquaculture skill has been improved under the consumers demand in recent years. Nowadays, barramundi aquaculture has become a common raising species (Dai, 2016).

The statistics of the Agriculture Commission of the Executive Yuan (2015) pointed out that Taiwan's barramundi was still dominated by lateolabrax japonicas. The data showed that lateolabrax japonicas easily live whatever in tropical, subtropical, fresh water, brackish water and the whole sea water. However, barramundi is tropical species, which is a wide salty fish and intolerant low temperature, only suitable for raising in southern Taiwan. Meanwhile, barramundi is unable to have the mass production throughout the year, so the yield was less than

lateolabrax japonicas. The study from Zhao and Guo (2012) showed that the barramundi is a carnivorous fish, that is, artificial raising will be followed for domesticated barramundi when the fries grow up to meet the demand of aquaculture field. Therefore, the domesticated barramundi has been fully accepted with artificial feeding. The study also pointed out that barramundi grow faster under the low salinity environment, however, it was easier to produce smelly flavor and soft meat if in the freshwater condition. Xu (2007) defined that as long as no damage to the environment, do not discharge the untreated wastewater, no antibiotics, etc., can be named as ecological aquaculture. Some aquaculture experts are biased to restore the past farming and animal husbandry. Huang and Liu (2011) studied that most aquaculture producer used of freshwater aquaculture, water depth of 1.5 to 2 meters, each stock of 5,000 to 12,000 from the 2-inch fry. Adult fish risk is lower, and the higher water temperature, the faster the fish growth, the general yield of about 70% to 80%. The range of salinity suitable for barramundi is from freshwater to 10 ppt, where ppt is the salt concentration unit. In other word, barramundi grows faster in low salt environments. But the same size of freshwater barramundi is heavier than the brackish one. And the stocking

density of saltwater aquaculture is lower than that of freshwater aquaculture. In fact, about 80% of the Taiwanese aquaculture industries are engaged in freshwater to salinity 10 ppt (Guo, 2001).

#### *Channels for Aquaculture Market Segmentation*

Lin, Huang and Liao (2011) considered that aquaculture producers usually grew their own fish from fries, then, to be purchased by the wholesale or processing plant after meeting the market specifications. As for domestic consumer market, it usually access via the auction of fishing market or logistic channel from wholesaler. While, export products are exported after processing. He pointed out that it was different between domestic consumer market and export markets according to fish size. It can be divided into four types of aquaculture, and also there are the different distributors: (1) To supply the domestic market demand, raising time of about 5 to 7 months, smaller size, higher price than export about 10-20 percent; (2) more than 1 kg, raising time of more than nine months, larger size than domestic market, large acquisitions, less price than domestic market (3). To enhance the aquaculture density in the early stage, nearly 6 months, first sale to domestic market, then, sale the remaining till raising to

the export size (4)The raising time of more than 2 years, more than 4 kg, the increasing in the purchase price, however, the capital investment was quite amazing, the relative risk of natural disasters also increased.

### Study Method

Eisenhardt (1989) argued that case studies focus on the dynamic state of a single context and was particularly applicable to the field of new research topics. He studied that the case study method was established by linking, comparison, and induction of multiple databases. The sources of these materials are combined with practice, from which the assumptions and theories are more feasible. Yin (1994) considered that the definition of case studies was a practical way of investigating, when the line between the phenomenon and the real life was not so clear, the study needed to verify the status quo through a variety of evidence. Yu (1995) thought that participatory observation was an interdisciplinary approach such as sociology, medicine and pedagogy as well. And the different definitions were given due to there are cross-cutting research characteristics. Wan (2004) argued that the in-depth interviews were to explore the real thoughts of respondents and got more real information. Its purpose was to dial through the real insider interview, the

real meaning, the impact, future development and solution.

Figure 1 shows the major study framework of this study. It was to explore the aquaculture method and aquaculture environment management, and raised out of each 1 kg of barramundi fish. Be purchased by wholesaler was the major market channel for barramundi producer, and sale on the market by self and home delivery was the secondary access. Therefore, this study was divided into "before depth interview" and "formal depth interview". First, the researcher participated 4 times of barramundi management at the aquaculture field including the daily work and process before depth interviews. As for "formal in-depth interviews", the official interview time and the number were as shown in the Table 1 interview schedule.

### Data Analysis

#### *Introduction of Case of Aquaculture Field*

A total of 6 hectares of aquaculture field, a total of 12 pools for 0.5 hectares each pool, annual rent of NT\$150,000-. The basic equipments consist of electric boxes, cables, windmills, pumps, automatic feeding machine. The overall cost was more than NT\$1million. The breeding fishes



contents gentian grouper, grouper, bass and milkfish as well. One of the pools is the mixed one of gentian grouper, grouper and bass. Grouper and bass are with small fish or shrimp as for their food. The similar size will not eat or attack each other, so they could be raised together.

It prefers the whole barramundi in Taiwan cuisine. Usually, the regular size of barramundi, about 1kg, is dominated by domestic sales selling restaurants, traditional markets or supermarkets. “No selling, no money”, the producer can decide what kind of fish to raise, and how size to be raised to sell after the market access is cleared.

The fish price will be determined by the fish breeding rate. Some other factories such as typhoons, sudden drop in temperature and other natural disasters will cause a big damage even lose money. As for distributors, there are two kinds of wholesaler for selling 0.6kg and 1.8kg.

#### *The Actual Aquaculture of Barramundi*

According to the contract, all the fish in the pool is owned by the whole-

saler. First, the wholesaler takes away 5,400kg on the base of 6,000kg in a fish pool, the wholesaler then takes the remaining 600kg fish away after the pool water was totally released.

If there is no contract, the producer will take the remaining 500kg fish to sell on the market by producer after being taken away 4,800kg from a fish pool. The producer's, Mr. Wang, views on his own ecological aquaculture is as follows:

*Mr. Wang:*

*“Others can raise 24,000kg, I can only raise 6,000kg at the same aquaculture area and the same raising costs, 24,000 kilograms fish can earn NT\$200,000 if 0.6kg fish can earn NT\$5. But, I can only earn NT\$50,000. Economic benefit is poor here, so, I don't have the competitiveness.”*

The most concerning for the wholesaler about the fish is if there is soil smell or not, they do not care about whether the fish is in good condition or not. In general, with the soil smell is higher under freshwater. Actually, it is not the same fish feed comparing to raise with 40,000 fish and with 10,000 fish under the same raising area and water. It needs 120 bags of fish feed for 6,000kg fish and 500 bags of fish feed for 24,000kg fish. More fish feed causes more fish feces.



Figure 1. Study Framework

Table 1. Interview Schedule

Items	First time	Second time	Third time	Fourth time
Interview Time	11/21/2015	12/5/2015	1/1/2016	1/30/2016
Record Time	60 Minutes	120 Minutes	90 Minutes	60 Minutes

Then, the more fish feces make the higher oxidation under the same aquaculture area and water, which is the major reason for the smell of soil. The aquaculture producer will inform the wholesaler when fish is raised to meet the required weight. Later, the wholesaler will confirm the size of fish, and bring one fish away to taste if there is soil smell or not, the relevant work flows will be arranged, including the exact date and time to collect the fish, after making sure the fish quality. Finally, the wholesaler will select the workers to collect the fish, and the wages are usually paid by the aquaculture producer. The remaining fish will be sold to traditional market or home

delivery by the producer. The weekly sales are about 50 to 80 fish. In addition, it could be sold more than 200 fish monthly by home delivery service through the introduction by friends or relatives. The producer can only earn NT\$10 for each fish from raising to sell, however, the wholesaler can have NT\$40 profits for each fish and he is just for resale.

*Mr. Wang :*

*“The cost for raising each fish is NT\$50, and sell to the wholesaler may be only NT\$55 to 60, but the wholesaler may sell up to NT\$100 to consumers for each fish. I work very hard and only NT\$10 profits, but the wholesaler just resale and NT\$40 profits for*

*per fish. This is what I think is unreasonable, if so, as I sell by myself. I do my business slowly if I have the ability to handle.”*

*“If the fish is not sold out completely by the end of this year, it is necessary to move them to the mixed pool such as bass and grouper. The longer raising, the more delicious, but, the higher cost. If you do not care about the cost, the acceptance will be higher on retail market. ”*

Because the wholesaler won't collect the overweight fish, the fish continue to raise if more than 0.6 kg. The producer needs to find another wholesaler if the fish is over 1.8kg. The overweight fish will be cut into fillet and export. The export fish usually has to raise more than 1.8kg, because a fish is usually cut into 2 fleshy boneless pieces of meat. The other reason is the removed head, bones and internal organs almost weight 0.6kg, so it is necessary to have more than 1.6kg for export process. The quality of aquaculture products will be judged by the consumers. The longer raising time, the increasing risk and cost will be followed. The aquaculture producer does not care about the raising time, because he is very confident to his own aquatic products.

The aquaculture producer handles by himself in both raising and sales. In order to promote the access, the pro-

ducer deals with home delivery orders from Monday to Thursday and sells his fish on the market on weekend or holiday. The aquaculture producer wants to develop the network market access, but he is not good at online community operation and shopping for his own aquatic products.

#### *Aquaculture Environmental Management of Barramundi*

Aquaculture environment is very important for fish's growing up. First, to cleanup fish pond, then start to raise the fish after dry and clean water quality. It should be ruled out the hidden algae inside the fish pond, and sterilization through the sunburn is also necessary, otherwise the algae will affect the difficulty of purification of water quality. Fish can start to raise after the pond is cleaned Usually, and water purification is good.

Usually, a windmill can take care of the amount of oxygen required for 1,500kg fish. The numbers of windmills for each fish pond will be determined by the fish amount. In general, it is about 10,000 barramundi fish in a pool. And the fries will release into the fish pond during spring and summer and can be harvested in autumn, because the barramundi will not grow up in winter. The feeding time for barramundi is three hours before dawn and

three hours before dusk, and the using of automatic feeding machine can reduce the manpower. Producer owns a total of 12 ponds, feeding fish at least one hour every day, and patron the fish pond once in the morning and in the evening respectively. A pool contents of about 10,000 fish, the normal one is 40,000 fish in a pool, but the breeding work will not be reduce due to the less fish. Moreover, because the salty fish pool is not suitable to raise the density fish amount. The saltier water will be less oxygen content. The insufficient oxygen content will cause the soft meat of barramundi. June and July are the proper time to feed barramundi. The weather is hotter, the easier to feed fish and vice versa. The so-called "Feed Conversion Rate, FCR" refers to the food transferred into muscle. FCR for barramundi is about 0.7 to 0.8 kg of feed into 0.6kg of flesh, so the FCR is about 80%.

*Mr. Wang:*

*"30 kg fish feed for NT\$1500 equals to 1 kg fish feed for NT\$50. So raise 0.6kg barramundi will cost NT\$40 (NT\$50 × 0.8 FCR = NT\$40). A fry is NT\$5, add the electricity pay and wages, so the cost of a barramundi is at least NT\$50. This is the lowest cost, add the medication, or breeding rate is not good, the cost will be higher."*

Fish meat depends on the breeding density. High density creates the less space for fish and vice versa. The fish meat is more delicious under the enough space. The aquaculture field must install the basic equipment such as windmill in addition to the upgrading of aquaculture techniques and management. Further, the fish feed manufacturer often asks to cash transactions, because the fear of dead fish or debt, so the price of feed can't afford to offer any discount even buy a lot. Due to the consumers insist on the healthy and good taste of fish, to prepare the medicine for the sick fish or to avoid being infected to the whole pool of fish is necessary and this creates an extra expenditure for the producer. Infrastructure and feed require to pay by cash to form the financial pressure.

### Conclusion

Ecological aquaculture is based on low-density aquaculture, a pool for 10,000 fish, unlike high-density aquaculture. The pressure source comes from its infrastructure and cash expenditure for feed fee. It has a great cost gap comparing with high-density aquaculture, but the quality is higher than the latter. Ecological aquaculture has made the barramundi taste extremely delicious. When the harvest, the wholesales buy the adult fish which makes the producer has a fixed income

and the producer can also run their own retail market.

The study showed that the excellent fish quality raised by ecological aquaculture is better than traditional aquaculture. The producer is currently in contact with the network and home delivery business. Still, the producer

does not fully understand the computer and network store operation, because only one person engaged in so complicated work. If there are young people who are willing to join the network to sell, the sales of barramundi business is bound to have a new growth in the future.

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