Leveraging the Factors Affecting Participation in the Martial Arts: A Validation and Application of Twemlow, Lerma and Twemlow

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Abstract

This paper reports a validation, refinement and application of a scale by Twemlow, Lerma and Twemlow (1996). The relationships of the motivating factors underlying martial arts participation are further utilized within an integrated marketing strategy for student recruitment. Data for 60 martial arts students were subjected to exploratory factor and item reliability analysis. Four factors were derived: Spirituality, Physical discipline, Sport, and Fun. Consistent with the Twemlow study, Physical discipline was the most important motivator. A MANCOVA indicated that these factors were not significantly associated with skill level or time in training, with a moderate relationship between Age and Spirituality.

Background

Assessing the primary motivations of individuals to participate in martial arts training can play a significant roll in client/student recruitment. Experienced martial arts marketing practitioners have found that "whatever the means of advertising employed— brochures, a Yellow PagesTM listing, or word of mouth — a potential student will almost always approach through a phone call.... Typically, a potential student calls to gain additional information on which to base his selection of a school and begins by asking some sort of question, usually about the nature of training or the cost of lessons" (Wolfe, 2006). It is at this point that the importance of ascertaining the potential client's motivation to enrol in martial arts classes is critical to formulating an effective sales strategy.

In Australia about 5% of children aged 5 to 14, and about 2% of adults participate in the Martial Arts (ABS, 2002, 2005; ASC, 2003). Martial arts can bring about a number of beneficial physical and psychological effects (Swiercz, 2004), specifically: health-related fitness (cardiorespiratory endurance, flexibility, muscular strength and endurance), performance-related fitness (balance, coordination, speed, agility, and reaction time), psychological or emotional factors of self-concept and self-esteem (Winkle and Ozmun, 2001).

Despite its popularity and the possibilities for physical and psychological benefit, little research has been conducted to examine motivations for individuals to participate in martial arts training. Partly, this is due to the lack of a clearly defined instrument with which to measure martial arts motivation.

Motivation to study Martial Arts

Twemlow et.al. (1996) surveyed 170 martial arts students, aged from five to sixty-three, to ascertain their motivations for undertaking the practice. A thirteen-item Likert-type scale asked respondents to rate the importance of various influences on their decision to take up

martial arts training. Items on the scale were: self-defence, physical exercise, improve self confidence, self discipline, fun or something to do, a sport, karate movies, spiritual practice, meditation, aggression outlet, competition and tournaments, to be more like a special or famous person, to be more like someone wants you to be. These items are loosely consistent with the Content Theory of motivation offered by McClelland (1961), which suggests that people are motivated by Need for Achievement, Need for Affiliation, and Need for Power. (McClelland's theory is summarised in almost any Consumer Behaviour or Social Psychology text.) Unlike McClelland's preferred but time-consuming Thematic Apperception Test (TAT) (McClelland, Atkinson, Clark & Lowell, 1953), each item was ranked on a 6-point scale anchored by "Extremely Positive Influence" (1) and "Extremely Negative Influence" (6). Twemlow et.al. divided their scale items into Physical and Recreational Needs, Intellectual and Emotional Needs and, Integrated Self-Transcendent Needs. The first of these factors was found to be the principle motivation for commencing training, supporting views expressed by others (e.g., Maliszewski, 1992).

Given that the literature has not produced an accurate way to measure motivation to study martial arts, there is a need for such an instrument and for its psychographic characteristics to be assessed. The remainder of this paper reports a replication of the Twemlow et.al. (1996) study. The intention is to produce a reliable instrument for measurement of an individual's intention to study the martial arts with the purpose to develop customised marketing communications for different motivational profiles.

Method

Adult subjects were recruited from three martial arts clubs in a major Australian city. Respondents were provided with the Twemlow et.al. instrument at the end of a training class and asked to place it anonymously in a box upon completion. Individuals were also asked to state their age, gender, martial art grade and length of training. Participation was voluntary and provided 82 responses of which 60 were useable. Forty-two of the useable subjects were male and eighteen female. Age ranged from eighteen to forty-nine with grades from beginner to black belt. The average length of training was 13 months. The four black-belt subjects had been in training for between three and ten years. The remaining coloured-belts had been training for less than 30 months, with 31 subjects reporting they had been in training six months or less. Data were subjected to exploratory factor analysis to provide insight into the structure of responses, item reliability analysis to examine internal validity, and a subsequent MANCOVA to eliminate threats to external validity resulting from gender, grade and age bias. Factors were extracted using a VARIMAX rotation for identifying independent factors. The required loading for the analysis was set at .70 consistent with the sample size (Hair, Anderson, Tatham & Black 1998).

Findings

Four factors had eigenvalues greater than 1.0. A scree test confirmed four as a suitable number of factors. No change to the interpretation of the Factor Analysis results or of interitem correlations resulted from bootstrapping the data, suggesting highly stable factor structure, despite the sample size. Results of the analysis appear in Table-1.

Eleven of the thirteen items in the Twemlow et.al. (1996) instrument loaded on the four factors produced. In this paper these factors are named Spirituality, Physical Discipline, Sport and Fun. Almost all items correspond well to the categories suggested by Twemlow et.al. (1996). The factors in Table 1 account for 69% of the variance in the data.

Internal validity of the constructs was tested using an item reliability test. Given the limited sample size, the cut-off for reliability was set at Cronbach's alpha > .70 (Nunnally 1978). Factor 1 (Spirituality) achieved an alpha of .78 that improved to .82 on deletion of the item Karate movies. Factor 2 (Physical discipline)'s alpha was .72 with no changes increasing its reliability. The alpha for Factor 3 (Sport) never was higher than .64. Factor 4 (Fun) was a single item and not estimated.

Table 1: Results of analysis of data showing four extracted factors

Item	Factor1	Factor 2	Factor 3	Factor 4
	Spirituality	Physical	Sport	Fun
D 10 1 .: E: 1	2.01	discipline	2.10	1.20
Rotated Solution Eigenvalue	2.81	2.77	2.10	1.30
Physical Exercise		0.75		
Improve Self Confidence		0.70		
Discipline		0.74		
Self Defence				
Karate movies	0.72			
Spiritual practice	0.75			
Meditation	0.77			
Aggression outlet	0.71			
Sport			0.73	
Competition			0.73	
To be like a special person			0.72	
To be like someone wants				
me to be				
Fun				0.87
Variance Explained	0.22	0.21	0.16	0.10
r				
Scale Cronbach's Alpha	0.82*	0.72	0.64	NA
N=60. Factor loadings less the				

given sample size.

Further analysis was performed to confirm the viability of these constructs. The three items of Factor 1 were averaged to provide a new variable, Spirituality. Items in Factor 2 were treated the same to construct a variable named Physical Discipline, and the single item Fun in Factor 4 was retained intact. Factor 3 was removed because of its low reliability.

These new variables were treated as dependent in a MANCOVA wherein subject gender and belt rank were the independent variables and time in training was a covariate. Means for each were: Spirituality (3.14), Physical Discipline (1.83) and, Fun (2.28), with a lower score indicating a greater importance. None of Gender, Rank or Time in Training had any significant association with reported motivation for studying Martial Arts at the p<.05 level (F=.27). The MANCOVA however did suggest a mild relationship between Age and Spirituality, at the 90% confidence level. That relationship remained when the four black-belt subjects were removed. The relationship amongst all demographics and potential influencing factors is summarized in Table-2 with pairwise correlations.

^{*} Factor improved with removal of "Karate Movies"

Discussion

This research replicated a previous study by Twemlow et.al. (1996) and sought to refine and validate the scale used by those authors. The original thirteen items were reduced to seven covering three factors: Spirituality, Physical Discipline and Fun. Consistent with other authors (Maliszewski, 1992; Madden, 1995) the findings indicate that Physical aspects contribute more to taking up martial arts than the Spiritual.

Table 2 Demographics correlated against Factors Influencing Martial Arts Participation

	Age	Sex#	Months	Belt##
			Training	
Spirituality	410**	181	104	065
Physical	095	.079	095	161
Discipline				
Sports	153	034	106	260
Fun	.123	.049	.105	.004

^{##} Correlations for Belt Grade are Spearman's Rho.

Marketing Implication & Application

As one practitioner observes: "Don't even answer the caller's first question... Regardless of what is asked, respond with "What are you looking for in training?" This question will provide a clear picture of what is motivating the potential student to seek martial arts training. The more you know up front the better will be the description of how your program will address what the potential student perceives as his needs (Wolfe, 2006). Once the needs and motivation of the potential student are identified the client's "profile" serves as the basis for all further "marketing communications." For example:

"Depending on the profile formulated in the initial call... an invitation to observe a class and/or a package of detailed information is sent. The information package may include a brochure, a map with the location of the dojo, a schedule of tuition and fees, background data information on aikijutsu or kenjutsu, or a reprint of an article we've published. Most people seem very pleased by the prospect of the information package. From the reactions I receive, my impression is few other schools make any provision for a personal, follow-up letter, and yet students who enrol in our dojo often cite the letter and information package as a primary factor in their selection of our school." (Wolfe, 2006)

Conclusion

The validation and refinement of Twemlow, Lerma and Twemlow scale (1996) clarifies the distinct motivational dimensions for participating in martial arts training. Accordingly, assessment of an individual's motivations for participating in martial arts - in terms of Physical and Recreational Needs, Intellectual and Emotional Needs, and Integrated Self-Transcendent Needs - can be utilized by martial arts service providers in establishing and cultivating potential client/customer relationships.

[#] Correlations for Sex are Point Biserial correlations.

^{**} Correlations p<.95 (Pairwise correlations tend to be overstated compared with MANCOVA).

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