

WCPCG-2011


An Examination of the Relationship Between Perfectionism and Self-esteem in a Sample of Student Athletes

Mohamad hosein ghahramani ^a*, Mohammad Ali Besharat^b, Behnam.naghipour^c

^a *Shahid Beheshti University School of Physical Education and Sport Sciences*

^b *Tehran University School of Physical Education and Sport Sciences*

[a, citation and similar papers at core.ac.uk](http://core.ac.uk)

brought to you by  CORE

provided by Elsevier - Publisher Connector

Abstract

To examine the relationship between Perfectionism and self-esteem in a sample of athletes, 56 students (33 males, 23 females) from the University of Tehran were included in this study. All participants were asked to complete Farsi version of the Positive and Negative Perfectionism Scale (FPANPS) and Coopersmith Self-esteem Inventory (SEI). The results showed that positive Perfectionism was positively associated with self-esteem and negative Perfectionism was negatively associated with self-esteem. Positive Perfectionism is supposed to increase level of self-esteem through enhancement of “self-competence” and “self-acceptance”. Conversely negative Perfectionism is supposed to decrease level of self-esteem through reducing “self-competence” and “self-acceptance”, as well as developing or intensify psychological disorders such as depression, anxiety, and personality or interpersonal problems.

Keywords: Perfectionism, self-esteem, sport, sport psychology

Introduction

Hamachek (Hamachek, D. E. (1978).) Having deforesting between normal and neurotic Perfectionism menaced believes verify two kinds of neurotic and normal. The personal limit; a neurotic Perfectionism will never be lives that neurotic disagreeable perfectionists wide strongly the failure (Blatt, S. J. (1995).). They are so damageable when facing criticism by others. This group of perfectionists' considers different kinds of activities' and social relationship as threatening, imposed and not projecting.

Therefore, Frost and Henderson (Frost, R. O., & Henderson, K. J. (1991).) consider focusing and the mistake and probable negative social assessment athletes having abnormal Perfectionism as the factors of failure. Since committing a fault in a sport competition is not avoidable the athletes with neurotic Perfectionism will rarely satisfied with their functions. This is while the persons with normal Perfectionisms limits when setting highly personal and accept personal and Environmental limits(Blatt, S. J. (1995).) when setting highly personal standard for them self and consider them self as successfully even their personal standard not completely material(Hamachek, D. E. (1978).).

This group of perfectionists can experience more satisfaction with respect to the capability of accepting personal limits and environmental barriers following efforts for success and materialization their objectives the findings

* Mohamad hosein ghahramani. Tel.: 09141562445

E-mail address: ghahramani.mohamadhosein@gmail.com.

(Blatt, S. J. (1995).) by hardy Jones and gold on world famous athletes Perfectionism mach to this kind of positive prefer .

The reports by Scanlon, stein revisal (Scanlan, T. K., Stein, G. L., & Ravizza, K. (1989).) , (Scanlan, T. K., Stein, G. L., & Ravizza, K. (1991).), Hansen (Henschen, K. (2000).) zinsser banker and Williams (Zinsser, N., Bunker, L., & Williams, J. M. (2000).) on (the positive effects) and (negative effects of Perfectionism verify two kinds of neurotic and normal Perfectionism). Self stem meaning the value and respect a person regards for himself (Coppersmith, S. (1967).) is the major determiner of the thoughts, emotions, outputs and personal behaviors (Leary, M. R., Tambor, E. S., Terdal, S. K., & Downs, D. L. (1995).). the interactive effect of self esteem and experiencing (success and failure) in different areas' in clouding self – esteem and successfully sport events have been investing through various researches and consequently verified (Aghdasi,M.T(1993).) , (GH.B, (1995).).kerr and goos (Kerr, G. A., & Goss, J. D. (1997).) having compared gymnasts with high and low self esteem, choragus showed that those , with low self esteem could not manages to control their personal feeling. Berry and howe (Berry, T. R., & Howe, B. L. (2000).) .

the finding by Barry and how indicated that athletes having low self esteem wear more prone to anxiety of competition than those having high self esteem .Based on the comment by some of the researchers, self acceptance determines self- seem (Sonstroem, R. J., & Morgan, W. P. (1989)) , (Sonstroem, R. J., Harlow, L. L., Gemma, L. M., & Osborne, S. (1991).). Therefore, it is predicted that feeling competent in a special issue helps increasing personal value and respect and consequently increasing individuals self esteem (Sonstroem, R. J., & Morgan, W. P. (1989)) , (Sonstroem, R. J., Harlow, L. L., Gemma, L. M., & Osborne, S. (1991).).On the relationship between Perfectionism and self – esteem, the findings indicated that normal Perfectionism is correlated to higher self esteem while neurotic Perfectionism is correlated to lower self- esteem. Also, while some researchers have verify the correlation between neurotic perfection ism and lower self esteem (Hamachek, D. E. (1978)) ,(Burns, D. D. (1980)).(Blatt, S. J. (1995)) ,(Rice, K. G., Ashby, J. S., & Slaney, R. B. (1998)). (Slaney, R. B., Rice, K. G., Mobley, M., Trippi, J., & Ashby, J. S. (2001)), (Cheng, S. K., Chong, G. H., & Wong, C. W. (1999).) it has been indicated that there is no relationship between normally Perfectionism and self – esteem(Accordino, D. B., Accordino, M. P., & Slaney, R. B. (2002)) , (Vohs, K. D., Bardone, A. M., Joiner, Jr. T. E., Abramson, L. Y., Heatherton, T. F. (1999).).In addition, to the important of the structure of Perfectionism in sport psychology because of its direct influence on the performance of the athlete and the outcome of the Competition , the limited current findings necessitate the current research . in sport psychology , two researches on Perfectionism and self – esteem have been done .in one of them , the correlation between normal Perfectionism and lower self –esteem has been verified(Mahoney, M. J. (1989).) . the current research is intended to study the relationships between negative and positive Perfectionism and self – esteem .to reach this objective , two hypo theses have been studied:

1. There is a positive relationship between positive relationship between positive Perfectionism and self -esteem .
2. There is a negative relationship between negative Perfectionism and self-esteem.

Method:

Participants, sample, methodology

The participants in clouded sports students in the faculty of physical education in Tehran University.60 male and female students were selected randomly. Having described the objectives of the research and attracting participants, The positive and negative Perfectionism scale and Coppersmith self-esteem inventory were provided .four series of a questionnaires were omitted because of in correct responds and the data for 56 (33 male and 23 female) where studied as the final sample for the research.

Measurement tools

Negative and positive Perfectionism scale:

This scale is comprised if 40 questions .20 For positive Perfectionism and 20 for negative Perfectionism. The questions measure the Perfectionism in Subjects through up five rate scale in two areas of positive and negative Perfectionism .the minimum point was 20 and the maximum point was 100.in the Persian form of the questionnaire(Besharat.M.A(2004).).the Kranbakh alpha for individual subscales in a sample of 212 students , %90 and% 87 percents for all Subjects % 91 and %88 percents for females and %89 and %86 percents for males were observed respectively .which showed higher internal consistency. The coefficients of correlation among the points of 90 Subjects were calculated two times during four weeks for all Subjects , r= 86% , For females r= %84 and for males , r=%87 .it indicates a satisfactory test –retest reliability.The reliability of negative and positive Perfectionism scale was studied through calculating the correlation between the subscales of test with the subscales of the general health questionnaire (Goldberg, D. P. (1972).) and copper smith self-esteem inventory(Coppersmith, S. (1967).) and also through the method of major parameters analysis. The Coefficients and results obtained verify the validity of the negative and positive Perfectionism scale(Besharat.M.A(2004).).

Coppersmith self esteem inventory

The Subjects self-esteem has been measured by using coppersmith self-esteem inventory (Barrow, J. C., & Moore, C. A. (1983).) It comprises 58 item which are answered by yes/no . 50 item are for four subscale of general family academics , society and 8 for measuring.Lies the total point for self-esteem is calculated with respect to the total points of the four subscales. And 8 items for measuring lies. The characteristics of coppersmith self-esteem inventory in foreign (Fisher, D., & Beer, I. (1990).)(Coppersmith, S. (1990).).And domestic researches (Pvrshafy. H. (1993)) , (Zolfaghari, Akram Sadat (1376).). have been studies and verified crocker (Crocker, J. (1993).). Based on the researches on validity of coppersmith self-esteem inventory this scale has been reported to have a good validity. Fischer and bier(Fisher, D., & Beer, I. (1990).) verified the validity and reliability of coppersmith self-esteem inventory in a sample of 411 individuals. Zolfaghari (Zolfaghari, Akram Sadat (1376).)calculation Kranbakh alpha in a sample of 600 high school students as %85 the correlation coefficient was %84 which indicates.The validity of the structure of the above mentioned inventory the coefficient of Kranbakh alpha was reported as %87. In the current research, the general self-esteem’s point was used.

Results

%59 of the Subjects (n=33) and %44 (n=23) were males and females, respectively . the average age for total Subjects was 22/21 (s d=2/49) ; domain=19-31) the average age of male athletes 23/21(s d=2/66, domains 19-31) average age of female athletes 20/78(s d=1/44, domain= 19-23) the frequency and percentage of different sport events include: track and field (25) 14, football (16/1) 9, swimming (7/1) 4, basketball(5/04) 3, Fighting (5/4)3, boxing (5/4)3, water polo (5/4)3,futsal (5/4)3, Gymnastics (5/4) 3, Volleyball (3/6)2, Handball (5/4)3, Taekwondo (3/6)2, Karate (3/6)2, wrestling (3/6)2 . 54 students were studying in B.A levels while two students were studying in “M.A “.

Table 1: shows the central indices for the Subjects on the points of positive Perfectionism and self esteem. the mean and S.D for positive and negative Perfectionism and self esteem were calculated as (6/79) 85/21 ;(4/65) 57/87;(4/20) 38/18 for males and (6/88) 82/82; (4/78) 58/73; (4/95)38/65; for females and (7/27) 84/23(4/68) 58/23 and(4/49)38/37 for all athletes.

Table 1 : the mean and S.D of the points for positive and negative Perfectionism and self esteem in athletes.

index	Normal perfectionism	Neurotic perfectionism	Self steem
Group	M(SD)	M(SD)	M(SD)

Males athletes	85.21(6.79)	57.87(4.65)s	38.18 (4.20)
Females athletes	82.82(7.84)	58.73(4.78)	38.65 (4.95)
total	84.23(7.24)	58.23(4.68)	38.37 (4.49)

To analyze the data and to test the hypotheses, first the results of t test were received in order to compare the male and female athletes on positive and negative Perfectionism and self esteem.

The summary of the results of the t test showed that there was no meaningful difference between males and females on three above mentioned variables (table2).

Table 2 : the results of at t test for comparing male and female athletes with respect to positive and negative Perfectionism and self-esteem

variable	Index	mean	Standard deviation	d f	t	p
Normal Perfectionism	Group					
	Males Athletes	85.21	6.79	5	2	2
	Females athletes	82.82	7.84	4	1.1	0.3
Neurotic Perfectionism	Males Athletes	57.87	4.65	5	6	5
	Females athletes	58.73	4.78	4	0.07	0.0
Self steem	Males Athletes	38.18	4.20	5	3	7
	Females athletes	38.65	4.95	4	-0.8	0.0

Thus , correlation coefficient for male and female athletes have been studied with respect to research variables .the results of Pearson test that showed that there is a positive and meaningful relationship between males and females for positive Perfectionism and self esteem($r=0.54, p=0.001$). also, there is a meaningful negative relationship between males and females on negative Perfectionism and self esteem($r=-0.52, p=0.001$)(table3).

Table3 – Pearson Correlation coefficients between athletes' points in comparing negative and positive Perfectionism to self esteem.

critierion	Normal perectionism r(p)	Neurotic perectionism r(p)	Self steem r(p)
Normal Perfectionism	1		
Neurotic Perfectionism	-0.41 (0.001)**	1	
Self steem	54.0(0.001)**	-0/52 (0.001)**	1

** P=0/01

Then ,The relationship between negative and positive Perfectionism more and lazed as predictors and self esteem as standard variable in regression equation. The results of variance analysis and regression characteristics between self esteem and negative and positive Perfectionism can be observed in table 4 .

Based on the results, F is significant $p < 0/001$ and the %40 variance of self esteem is expressed by negative and positive Perfectionism . ($R^2=0/40$) The coefficients of positive Perfectionism ($B = \%24$)

And negative Perfectionism ($B = - \%34$)

With respect to indicate that t test these two variables with a confidence of %99 . Can show that the changes for self esteem might be predicted : It means increased positive Perfectionism Leads to increased self esteem and increased negative Perfectionism Leads to decreased self esteem . these findings will prove the first and second hypotheses .

Table 4 – A summary of the model for regression , variance analysis and statistics of self esteem regression on positive and negative Perfectionism

index	SS	Df	Ms	F	P	R	R ²	SE
Mode								
Regression	453.00	2	226.505	18.297	0.000	0.639	0.408	3.50
remainder	656.116	53	12.380					
index	B	SEB	Beta	t	p			
Variable								
Normal Perfectionism	0.245	0.072	0.397	3.412	0.001			
Neurotic Perfectionism	-0.364	0.112	-0.361	-3.104	0.003			

Discussion

The results indicated that there is a meaningful relationship between positive Perfectionism and self-esteem . Also , there is a meaningful negative Correlation between negative Perfectionism and self esteem(Hamachek, D. E. (1978)) , (Burns, D. D. (1980)) , (Blatt, S. J. (1995)), (Cheng, S. K., Chong, G. H., & Wong, C. W. (1999).) . these results match to the results obtained from those researches proving a similar relationship between above mentioned variables for negative and positive Perfectionism. However , they don't match to the findings not proving such relationship between negative and positive Perfectionism and self esteem(Accordino, D. B., Accordino, M. P., & Slaney, R. B. (2002)), (Vohs, K. D., Bardone, A. M., Joiner, Jr. T. E., Abramson, L. Y., Heatherton, T. F. (1999).) . several descriptions have been provided :

1- Based on the comments by Sonstroem and his colleagues (Sonstroem, R. J., & Morgan, W. P. (1989)) , (Sonstroem, R. J., Harlow, L. L., Gemma, L. M., & Osborne, S. (1991).) feeling((self-acceptance)) and ((self-competence)) are considered as the predictors of general self esteem .

The normal and positive Perfectionism will able the individual to accept the personal .And environmental limits Realistic experiencing success (Hamachek, D. E. (1978)), (Blatt, S. J. (1995).)and feeling satis faction will increase self-esteem while increasing self-competence. On the contrary, neunotic and negative Perfectionism which is determined through personal standards and dissatis faction and continuous critioism will reduce strongly success and feeling satisfied (Hamachek, D. E. (1978) , (Burns, D. D. (1980).) .

2) In opposition to self-competence which is influenced by((self-efficacy)) , ((self-acceptance)) can help a person respect himself without regarding success or failure (Wylie, R. C. (1979).)such situation while matching to positive Perfectionism will lead to increased self-esteem on the contrary neurotic and negative Perfectionism will

degrade resistance against failures (Hamachek, D. E. (1978)). (Burns, D. D. (1980).) and faults will degrade self-acceptance reduced self-respect will lead to reduced self esteem .

3) Beside two above mentioned exterminators the correlation reported between and psychological disorders including traits (Strauman, T. J. (1989)), (Hewitt, P. L., & Flett, G. L. (1991b).) and anxiety (Strauman, T. J. (1989)) , (Bsharat, M.A (2003)) , (Antony, M. M., Purdon, C. L., Huta, V., Swinson, R. P. (1998)), (Frost, R. O., & Steketee, G. (1997).) personality (Hewitt, P. L., & Flett, G. L. (1991b)) , (Hewitt, P. L., & Flett, G. L. (1991a).) and inter personal (Bsharat, M.A. (1383)) , (R. W., Zrull, M. C., & Turlington, S. (1997).) problems will explain the results of the current research negative and neurotic Perfectionism will reduce self-esteem through increasing disorders and problems a phenomenon which reverses with respect to positive Perfectionism and increases self-esteem (Hamachek, D. E. (1978)) , (Blatt, S. J. (1995)) , (Flett, G. L., Hewitt, P. L., Blankstein, K. R., & Kolden, S. (1991)) , (Flett, G. L., Hewitt, P. L., Blankstein, K. R., & O'Brien, S. (1991).) .

4) Far the differences between the findings of the current research and the results from some other researches showing no relationship between normal Perfectionism and higher self-esteem might be documented self-esteem can express basic output (Accordino, D. B., Accordino, M. P., & Slaney, R. B. (2002)) , (Vohs, K. D., Bardone, A. M., Joiner, Jr. T. E., Abramson, L. Y., Heatherton, T. F. (1999).) . A person in relation to personal value and importance Dr as a state which changes as responding to the situations and conditions (Heatherton, T. F., & Polivy, J. (1991).) . Based on this differentiation , the similar correlations reported in all researches in relation between negative Perfectionisms and lower self esteem can be described with respect to state or trait . while the dissimilar correlations in different researches whether proving the relationship between positive Perfectionism and lighter self esteem or not don't enjoy such congruence. Approval of the correlation between these two variables in some researches maybe related to the state of self-esteem , while disapproval of the correlation between two variables in other researches maybe related to self esteem and vice versa. The details for interpreting of the current research and more researches are required.

The limited participants and kind of research cause limits in generalizing the findings, interpretations and documents of these two variables which require more considerations.

Acknowledgment

I, hereby , gratify all efforts by dear professors at faculty of physical education , all the students participated in the research . Especial thanks goes to dear Mrs. Razaghi and Mehranz Fadayi at the Faculty who assisted activity to complete the research.

References

- Aghdasi, M. T. (1993). Comparison of self-esteem and student athletes and non athletes. End MS letter, Tarbiat Modarres University
- Accordino, D. B., Accordino, M. P., & Slaney, R. B. (2002). An investigation of Perfectionism, mental health, and achievement motivation in adolescents. *Psychology in the Schools*, 37, 535-545.
- Antony, M. M., Purdon, C. L., Huta, V., Swinson, R. P. (1998). Dimensions of Perfectionism across the anxiety disorders. *Behavior Research and Therapy*, 36, 1143-1154.
- Barrow, J. C., & Moore, C. A. (1983). Group interventions with perfectionistic thinking. *The Personnel and Guidance Journal*, 61, 612-615.
- Burns, D. D. (1980). The perfectionist's script for self-defeat. *Psychology Today*, 14, 34-52.
- Blatt, S. J. (1995). The destructiveness of Perfectionism: implications for the treatment of depression. *American Psychologist*, 50, 1003-1020.
- Berry, T. R., & Howe, B. L. (2000). Risk factors for disordered eating in female university athletes. *Journal of Sport Behavior*, 23, 207-219.
- Berry, T. R., & Howe, B. L. (2000). Risk factors for disordered eating in female university athletes. *Journal of Sport Behavior*, 23, 207-219.
- Berry, T. R., & Howe, B. L. (2000). Risk factors for disordered eating in female university athletes. *Journal of Sport Behavior*, 23, 207-219.
- Bsharat, M.A. (1383). Dimensions of perfectionism and relationship problems among students in private. *Daneshvar journal Behavior*, 70. Hill,
- Besharat, M.A. (2004). Reliability (reliability) and accuracy (validity) scale, Positive and negative Perfectionism. *Journal Psychological Science*, 8, p. 359-346
- Coopersmith, S. (1990). *Manual of SEI*. Conrulling Psychologist Press, Inc.
- Coopersmith, S. (1967). *The Antecedents of Self-Esteem*. San Francisco: Freeman.
- Cheng, S. K., Chong, G. H., & Wong, C. W. (1999). Chinese Frost Multidimensional Perfectionism Scale: a validation and prediction of self-esteem and psychological distress. *Journal of Clinical Psychology*, 55, 1051-1061.
- Crocker, J. (1993). Memory for information about others effect of self-esteem and performance feedback. *Journal of Research in Personality*, 27.
- Flett, G. L., Hewitt, P. L., Blankstein, K. R., & O'Brien, S. (1991). Perfectionism and learned resourcefulness in depression and self-esteem. *Personality and Individual Differences*, 12, 61-68.

- Frost, R. O., & Henderson, K. J. (1991). Perfectionism and reactions to athletic competition. *Journal of Sport and Exercise Psychology*, 13, 323-335.
- Fisher, D., & Beer, I. (1990). Codependency and self-esteem among high school students.
- Frost, R. O., & Steketee, G. (1997). Perfectionism in obsessive-compulsive disorder patients. *Behavior Research and Therapy*, 35, 291-296.
- Flett, G. L., Hewitt, P. L., Blankstein, K. R., & Kolden, S. (1991). Dimensions of Perfectionism and irrational thinking. *Journal of Rational-Emotive and Cognitive-Behavior Therapy*, 9, 185-201.
- Goldberg, D. P. (1972). The detection of psychiatric illness by questionnaire. *Maudsley Monograph*, 21. Oxford: Oxford University Press.
- GH.B, (1995) Review and compare the level of esteem with other disabled athletes athletes. End MS letter, Tarbiat Modarres University.
- Hewitt, P. L., & Flett, G. L. (1991a). Perfectionism in the self and social contexts: conceptualization, assessment and association with psychopathology. *Journal of Personality and Social Psychology*, 60, 456-470.
- Hamachek, D. E. (1978). Psychodynamics of normal and neurotic Perfectionism. *Psychology*, 15, 27-33.
- Henschen, K. (2000). Maladaptive fatigue syndrome and emotions in sport. In Y. L. Hanin (Ed.), *Emotions in sport* (pp. 231-242). Champaign, IL: Human Kinetics.
- Heatherton, T. F., & Polivy, J. (1991). Development and validation of a scale for measuring self-esteem. *Journal of Personality and Social Psychology*, 60, 895-910.
- Heatherton, T. F. (1999). Perfectionism, perceived weight status, and self-esteem interact to predict bulimic symptoms: A model of bulimic symptom development. *Journal of Abnormal Psychology*, 108, 695-700.
- Kerr, G. A., & Goss, J. D. (1997). Personal control in elite gymnasts: the relationships between locus of control, self-esteem, and trait anxiety. *Journal of Sport Behavior*, 20, 69-83
- Leary, M. R., Tambor, E. S., Terdal, S. K., & Downs, D. L. (1995). Self-esteem as an interpersonal monitor: the sociometer hypothesis. *Journal of Personality and Social Psychology*, 68, 518-530.
- Mahoney, M. J. (1989). Psychological predictors of elite and non-elite performance in Olympic weightlifting. *International Journal of Sport Psychology*, 20, 1-12.
- Pvrshafy, H. (1993). Investigate the relationship between self-esteem with academic achievement of third year high school students. End MS letter, Tehran Teacher Training University
- Rice, K. G., Ashby, J. S., & Slaney, R. B. (1998). Self-esteem as a mediator between Perfectionism and depression: a structural equations analysis. *Journal of Counseling Psychology*, 45, 304-314.
- R. W., Zrull, M. C., & Turlington, S. (1997). Perfectionism and interpersonal problems. *Journal of Personality Assessment*, 69, 81-103.
- Scanlan, T. K., Stein, G. L., & Ravizza, K. (1989). An in-dept study of former elite figure skaters: II. Sources of enjoyment. *Journal of Sport and Exercise Psychology*, 11, 65-83.
- Scanlan, T. K., Stein, G. L., & Ravizza, K. (1991). An in-dept study of former elite figure skaters: III. Sources of stress. *Journal of Sport and Exercise Psychology*, 13, 103-120.
- Strauman, T. J. (1989). Self-discrepancies in clinical depression and social phobia: cognitive structures that underlie emotional disorders? *Journal of Abnormal Psychology*, 98, 14-22.
- Sonstroem, R. J., & Morgan, W. P. (1989). Exercise and self-esteem: rationale and model. *Medicine and Science in Sports and Exercise*, 21, 329-337.
- Sonstroem, R. J., Harlow, L. L., Gemma, L. M., & Osborne, S. (1991). Test of structural relationships within a proposed exercise and self-esteem model. *Journal of Personality Assessment*, 56, 348-364.
- Slaney, R. B., Rice, K. G., Mobley, M., Trippi, J., & Ashby, J. S. (2001). The revised Almost Perfect Scale. *Measurement and Evaluation in Counseling and Development*, 34, 130-145.
- Vohs, K. D., Bardone, A. M., Joiner, Jr. T. E., Abramson, L. Y.,
- Wylie, R. C. (1979). *The Self-Concept: Vol. 2. Theory and research on selected topics* (rev. ed.). Lincoln: University of Nebraska Press.
- Zolfaghari, Akram Sadat (1376). Check the validity, validity and application letter seeking questions Kvprasmyt esteem in high school in Isfahan. End MS letter, Tehran, Tehran University
- Zinsser, N., Bunker, L., & Williams, J. M. (2000). Cognitive techniques for building confidence and enhancing performance. In J. M. Williams (Ed.), *Applied sport psychology: personal growth to peak performance* (4th ed., pp. 284-311). Mountain View, CA: Mayfield.