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Research Paper

An Investigation into Perfectionism, Self-Efficacy, Metacognitive Strategy Use, and Second Language Listening Comprehension: A Path Analysis Approach

Mohammad Hasan Razmi *

Ali Akbar Jabbari **

Department of Language and Literature, Yazd University

Saeed Zare ***

Science and Research Branch, Islamic Azad University

Abstract

Individual differences in personality traits can influence students' ability to learn a new language. Among the important personality traits, perfectionism has recently been the topic of investigation in second language acquisition research. Following this line of research, the current study aims at examining a path model linking dimensions of perfectionism to second language (L2) listening comprehension through mediating effects of subscales of self-efficacy along with the use of metacognitive listening strategy (MLS). A sample of 230 English as a foreign language (EFL) participants majoring in Translation studies and English Literature completed the perfectionism, general self-efficacy, and MLS questionnaires and took an IELTS listening comprehension test. The sample included 112 juniors (48.7 %), and 118 seniors (51.3 %) selected through convenience nonrandom sampling. Cluster analysis was used to identify three perfectionistic clusters: adaptive, maladaptive, and non-perfectionists. The results of a path analysis revealed that perfectionism

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* Ph.D Candidate, Email: hasanrazmi2000@gmail.com

** Associate Professor, Email: jabbari@yazd.ac.ir, Corresponding Author

*** M.A, Email: zare.saeed80@gmail.com

and MLS use were the most significant variables in the proposed conceptual model. While correlational analyses in this study revealed significant relationships among self-efficacy components and listening comprehension, the overall total effects were not significant. Adaptive perfectionism significantly contributed to the MLS use and listening ability (LA). Perfectionism also contributed significantly to the effort and persistence self-efficacy components. In contrast, perfectionism did not significantly influence the initiative self-efficacy subscale. Implications of this study are discussed.

Keywords: Second Language Listening Comprehension, Self-efficacy; Metacognitive Strategies, Perfectionism, Path Analysis Approach

Investigating second language (L2) listening comprehension has been a popular subject within the realm of applied linguistics (Matthews, 2018; Matthews & Cheng, 2015). This is due to the fact that listening is a common form of human communication acknowledged as a key element of both conversational skills and linguistic competence (Goh, 2002). Recent studies have confirmed that the application of metacognitive listening strategies (MLS) can significantly enhance the acquisition of L2 listening comprehension (Goh, 2019; Ghorbani Nejad & Farvardin, 2019). However, a major problem with the application of MLS use is individual differences in personality traits leading to differing performance in listening tasks (Dörnyei & Ryan, 2015; Veenman, Van Hout-Wolters, & Afflerbach, 2006). Consequently, in spite of receiving identical instructions, the learners may differ from each other and display variant achievements in task accomplishment. Such inter-individually variable nature of students' performance poses a major problem for second language learners and teachers. This indicates a need to understand the various personality factors that affect the use of MLS.

As a complex multidimensional trait, perfectionism (i.e., striving for complete accomplishment of tasks) is among the important personality factors in educational psychology (Deuling & Burns, 2017; Gnilka Novakovic, 2017). What is not yet clear is the effect of perfectionism on students' listening ability and MLS use, since there has been no credible empirical evidence to determine the conceptual connections between perfectionism and comprehension of second language listening. To remedy this problem, first, the theoretical connections between the two constructs must be identified. The first overarching goal of the present investigation is to identify the theoretical links among the variables. In spite of a dearth of studies in this regard, a notable number of studies have investigated perfectionism and L2 listening comprehension with reference to self-efficacy and its principal components. Self-efficacy, the efficiency of the investment of effort and persistence in task accomplishment, plays a mediatory role here and is a bridge through which the impact of perfectionism on metacognitive listening strategy use can be investigated.

Although there is a large body of research concerning the relationship between self-efficacy and perfectionism on the one hand and self-efficacy and metacognitive listening strategies, on the other hand, the interconnections among perfectionism, self-efficacy, metacognitive strategies, and listening comprehension have not been investigated in a single study.

This study is to bridge the theoretical gap between the constructs of interest and shine new light on the debate by means of an examination of perfectionistic attitudes and L2 listening comprehension through lower-order self-efficacy subscales. This study is also an attempt to apply the Complex Dynamic Systems Theory (CDST) approach (Dörnyei, MacIntyre, & Henry, 2015; Dörnyei, & Ryan, 2015; Larsen-Freeman, 2015), a leading innovative

theory in personality psychology research. In this approach, rather than being treated as monolithic discrete structures, the determinant variables of a phenomenon are considered to be multifaceted componential elements of a systematically dynamic and holistic model. The CDST views learner characteristics and personality attributes as components of a language acquisition system that dynamically interact with each other and constantly evolve, change, and exert influences on each other. Since individual differences and learner characteristics are no longer regarded as monolithic fixed attributes but as complex dynamic characteristics that are shaped by contextual and temporal conditions, they can be best explained by the CDST. Dörnyei (2017) invites researchers to conduct more research into individual differences with CDST principles. The study is a response to this invitation. From a theoretical perspective, building upon tenets of CDST, the present study treats perfectionism and self-efficacy as multidimensional dynamic constructs rather than unitary variables and recognizes their lower-order subcomponents as separate variables.

Literature Review

In the literature review section, first, the theoretical underpinnings of the constructs of the study are presented. Then the related empirical research is presented.

Perfectionism

Perfectionism, as an important personality construct in educational psychology, entails setting highly demanding performance expectations and expectations, sustaining excessive critical evaluation of oneself, and striving for perfection and flawless performance (Hewitt, Flett, & Mikail, 2017;

Stoeber, Damian, & Madigan, 2018). According to Adler (1956), the urge for perfection is an inherent quality of all mankind and has depicted itself in all stages throughout history. Perfectionism, according to Luckert (1986), dates back to early man, with a constant desire for perfection. The key components of perfectionism are fear of making mistakes, having high expectations, fear of failing, concern over order, neatness, and organization, striving for excellence, being critical of oneself and others, fear of failure, equating self-worth with success, and evaluative critical concerns (Frost et al., 1990).

Early conceptualizations of perfectionism treated the construct as a unitary dysfunctional personality construct, a "tyranny of the should" (Horney (1950, p. 65). However, there are now different conceptualizations of the construct, each positing different dimensions measured by different tools. Therefore, the conceptualization of the term has evolved and current conceptions of perfectionism see it as a multidimensional construct. Various instruments have also been designed to assess multidimensional perfectionism. Frost et al. (1990), for example, developed Frost Multidimensional Perfectionism Scale (FMPS). Perfectionism, according to Frost et al. (1990), is described as the setting excessively high expectations followed by excessively critical self-evaluation. In this conceptualization, perfectionism includes six theoretical dimensions: organization, personal standards, doubts about actions, parental expectations, parental criticism, and concern over mistakes. Major studies utilizing FMPS have used cluster analysis to acknowledge perfectionism as a multidimensional personality trait (e.g., Hawkins, 2005; Mills & Blankstein, 2000).

As a multidimensional personality attribute and a tendency to attain the highest attainable expectations (Nakano, 2009), perfectionism renders myriads of psychological outcomes in educational psychology research into

college student population (Locicero & Ashby, 2000; Stewart & George-Walker, 2014; Stoeber, Hutchfield, & Wood, 2008). Mediators have helped explain the associations between perfectionism and mental processes related to task performance (Deuling & Burns, 2017). Using a clustering approach, the main studies on perfectionism have identified three dimensions: adaptive (self-oriented), maladaptive (socially-prescribed), and non-perfectionists. Adaptive perfectionism is related to setting idealistic personal standards but making little room for mistakes simultaneously. A wide range of studies shows that greater qualities of self-efficacy and metacognitive strategies are significantly related to adaptive perfectionism (e.g., Mills & Blankstein, 2000; Razmi, Jabbari, Fazilatfar, 2020). Conversely, maladaptive perfectionism is linked to neurotic psychological disorders, intensive anxiety over making mistakes, inflexible self-evaluations, and uncertainty about the complete execution of activities. In an attempt to achieve precision in task fulfillment, adaptive and maladaptive perfectionists strive to set idealistic targets and avoid errors in activities (Seo, 2008). Finally, non-perfectionism is ascribed to low degrees of organization, fear of making mistakes, personal expectations, and feelings of uncertainty.

Self-efficacy

Self-efficacy is described as an inclination for beginning tasks, investing sufficient effort to carry out activities, and orchestrating persistence and perseverance in confrontations with challenges (Deuling & Burns, 2017). Self-efficacy, presented by Bandura (1997), pertains to the students' trust and self-confidence in fulfilling activities and achieving their desired learning goals.

Bandura added the self-efficacy dimension to his well-known social cognitive learning theory, which is focused on the idea that people behave in response to a variety of internal and external influences (Bandura, 1989). Self-efficacy tends to take an internal position and refers to the way cognitive functioning influences specific behavior patterns.

Self-efficacy, according to Bandura (1986), enables people to develop a self-system that allows them to regulate their emotions, thoughts, and behavior. In a learning process, this type of self-system involves both mental and emotional components that influence one's ability to learn from others and knowledge of using self-regulatory strategies. As a result, self-efficacy affects one's attitudes towards goals, as well as the amount of time and effort one dedicates to a specific task.

According to Bosscher and Smit (1998), self-efficacy entails three main components: initiative, effort, and persistence. By extension, L2 listening self-efficacy involves sustaining appropriate initiative in completing listening tasks and investing considerable hard work and perseverance in a limited amount of time during listening activities (Razmi & Jabbari, 2021; Razmi et al., 2020). Typically, self-efficacy is related to greater contributions effort in difficult learning tasks (Gutiérrez-Braojos, 2015; Ziegler & Opdenakker, 2018), effective use of cognitive and metacognitive strategies, demonstration of perseverance, and better academic achievement (Goudarzi, Ghonsooly, & Pishghadam, 2014; Seo, 2008). According to Bandura (1986), individuals with low degrees of self-efficacy typically have low scores of initiation and persistence, and these in turn lead to weak self-regulated performance, unwillingness to initiate tasks, and task avoidance.

Perfectionism and L2 Acquisition

There is an emerging trend in studying the role of perfectionism in SLA research (Barabadi, & Khajavy, 2020; Razmi & Jabbari, 2021; Razmi et al., 2020). A review of previous research shows that perfectionism has been investigated concerning language learners (Flett, Hewitt, Su, & Flett, 2016; GhorbanDordinejad & Nasab, 2013) as well as teachers (Mahmoodi-Shahrebabaki, 2017). The investigations done on learners have, in particular, focused on learners' language production and speaking skills. These studies have demonstrated that maladaptive perfectionistic attitudes and obsessive attention to accuracy issues will deprive the students of speaking skills and the natural production of language (Yoshida, 2013). The findings in these studies also indicate that maladaptive perfectionism affects language learners' fluency by demanding excessive accuracy standards in language performance. Maladaptive perfectionists often turn into passive learners who are not willing to initiate a conversation in language classrooms (Liu & Jackson, 2008).

While research is scant concerning perfectionism and L2 Listening comprehension, we can still refer to some notable studies. Pishghadam and Akhoondpoor (2011), studied the effects of anxiety and perfectionism on EFL students' performance in four language skills. The findings showed small but significant negative impacts of perfectionism on language learners' performance in speaking, reading, and listening skills. In another study, Moradan, Kazenian, and Niroo (2013) explored the impact of perfectionism on 97 EFL learners' listening ability. The findings suggested the overall perfectionism scores were correlated negatively with students' scores on the listening comprehension test.

A number of studies have investigated perfectionism with regard to self-regulation, metacognition, and learning strategies. Most studies in this regard

are within the context of clinical psychology (e.g., Dimaggio & Attinà, 2012) and cognitive therapy research (e.g., Grøtte, Solem, Vogel, Güzey, Hansen, & Myers, 2015). As an example in SLA research, Amini and Shamlou (2014) conducted an investigation with 94 Iranian female students probing the impacts of metacognitive strategy training and perfectionism on EFL learners' listening processes (top-down and bottom-up). Two sessions of explicit metacognitive strategy use instruction as well as two types of top-down and bottom-up measurements were conducted. Regarding the effect of metacognitive intervention on bottom-up listening ability processes, a major moderating effect was found. In this research, perfectionists demonstrated greater gains in metacognitive instruction intervention than non-perfectionists did. No differences were found between the perfectionistic groups regarding the top-down comprehension. This study also provided evidence that language learners' performance in top-down and bottom-up listening processes was better explained when perfectionism was taken into account.

Mills and Blankstein (2000) investigated perfectionism, motivational factors, self-efficacy, and learning strategies. The findings showed adaptive perfectionism was significantly and positively related to self-efficacy and the use of metacognitive and cognitive strategies used by participants. On the other hand, maladaptive perfectionism showed negative associations with the variables of the investigation.

Perfectionism, self-efficacy, and L2 Listening Comprehension

The concept of perfectionism is conceptually and practically connected to self-efficacy (Locicero, Ashby, 2000; Stoeber, Hutchfield, & Wood, 2008). An analysis of previous studies shows that the link between self-efficacy and perfectionism has been the subject of inquiry within the realm of educational

and personality psychology research (e.g., Deuling, & Burns, 2017; Flett, Panico, & Hewitt, 2011; Gnilka & Novakovic, 2017; Locicero & Ashby, 2000; Nakano, 2009; Seo, 2008; Stewart & George-Walker, 2014; Stoeber, Hutchfield, & Wood, 2008).

In empirical mediational studies, self-efficacy has been studied as a mediating factor linking independent constructs to perfectionism as a dependent variable. For example, Stewart and George-Walker (2014) investigated perfectionism, locus of control, and self-handicapping, in relation to self-efficacy in a sample of 79 university students. Conducting a path model, the authors found that unlike external locus of control, perfectionism was found to predict poor self-efficacy. Moreover, self-efficacy was not found to be a mediator of the link between perfectionism, locus of control, and self-handicapping in the mediation model proposed.

Similarly, Deuling and Burns (2017) investigated perfectionism and work/family conflict (WFC) mediated by self-efficacy and self-esteem. They used cluster analysis to deal with the multidimensionality of perfectionism divided into adaptive, maladaptive, and non-perfectionists. The analysis of the obtained data led the authors to conclude that there was a trend with adaptive perfectionists displaying high levels of WFC self-efficacy, while this pattern was not evident in maladaptive and non-perfectionist clusters.

In a more recent study, Farag (2020) examined EFL students' perfectionism and their self-efficacy scores related to four language skills. 114 advanced and intermediate ESL learners participated in this study. The results demonstrated that positive perfectionism was significantly linked to total self-efficacy scores and its four subscales. Negative perfectionism, on the other hand, did not show any significant relations with self-efficacy scores.

Research also provides evidence for a connection between self-efficacy and L2 listening ability (Mills, Pajares, & Herron, 2006). In particular, self-efficacy has been researched in association with metacognitive listening strategy use (Rahimi & Abedi, 2014). Research in this regard has highlighted the potential impacts of self-efficacy on the use of metacognitive listening strategies in EFL contexts.

An analysis of the above studies indicates that while there are numerous studies exploring the connections between perfectionism and self-efficacy as unitary constructs, few studies have taken subcomponents of the constructs into account. Moreover, in spite of the established theoretical links between the constructs, no single study in the area of SLA has investigated the effects of the dimensions of perfectionism and self-efficacy subcomponents on EFL students' listening ability. This analysis of the interrelations among subcomponents of higher-order constructs is also informed by CDST, which is the theoretical framework in the present investigation. This study, therefore, seeks to probe the effects of multidimensional perfectionism on L2 listening ability through the components of self-efficacy and metacognitive listening strategy use in a sample of 230 Iranian EFL learners.

The Hypothesized Model

According to the body of previous research along with the preliminary evaluation of the gathered data, a theoretical model was proposed via entering seven variables simultaneously to analyze direct and indirect effects among these constructs. The hypothetical model of the study is presented in Figure 1.

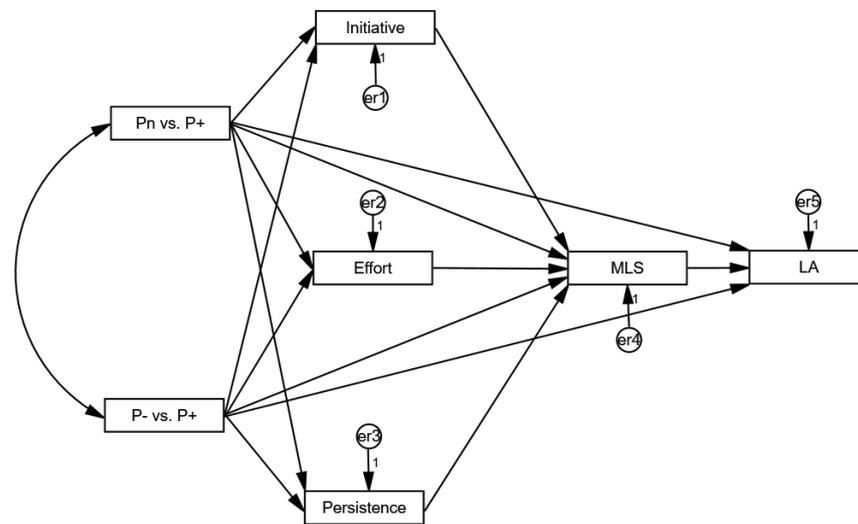


Figure 1. The hypothesized model

Note. Non-perfectionists (Pn); maladaptive perfectionists (P-); adaptive perfectionists (P+); metacognitive listening strategies (MLS); listening ability (LA).

Specifically, we made three hypotheses:

- (1) Adaptive perfectionism (vs. maladaptive and non-perfectionism) will directly and positively contribute to the self-efficacy subscales (initiative, effort, and persistence) and both directly and indirectly to MLS use and LA.
- (2) Self-efficacy beliefs will make direct and positive contributions to the MLS and indirect and positive effects on LA.
- (3) MLS will contribute directly and positively to LA.

In addition, this study also sought to answer the following questions: Which self-efficacy beliefs subscale was most influenced by perfectionism? Which factor has the most overall impact on MLS and LA? Which variable exerts the most significant impact in the final path model?

Method

This cross-sectional research is part of the first author's doctoral dissertation examining perfectionism and L2 listening and speaking abilities in a sequential explanatory mixed-methods design.

Participants

A total of 252 participants studying English Literature and Translation completed the questionnaires of the study at Islamic Azad and Shahid Bahonar universities in Kerman, Iran. 18 Participants were excluded because they failed to sit the IELTS listening comprehension test administered one week later and outside the participants' regular class time. Running the statistical analyses, the researchers excluded four participants since their scores on the variables of the study showed an extreme violation of multivariate normality, an assumption that must be met in structural equation modeling (SEM) analyses. A total of 22 participants were excluded.

The final dataset resulted in a sample of 230 participants (92 males, 138 females). Students were between 20 and 27 years old ($M = 21.04$, $SD = 1.37$). The sample included 112 juniors (48.7 %) and 118 seniors (51.3 %) selected through convenience nonrandom sampling. To guarantee that all participants had the same level of L2 competency, Oxford Quick Placement Test (60 items) was conducted. The results indicated significant differences in language proficiency neither between females and males, $t(228) = .140$, $p >$

0.05 nor between senior and junior students in the study, $t(228) = -.830, p > 0.05$. Similarly, there were no significant differences in the language proficiency level among the three perfectionistic groupings., $F(2, 227) = .678, p > 0.05$. The rationale behind recruiting senior and junior EFL learners was that more proficient ones had had more practice in L2 listening skills. Additionally, more competent listeners use higher levels of metacognitive strategies compared to less competent learners (Goh, 2002; Vandergrift, 1997).

Instruments

In order to gather data, we utilized the instruments described below:

Metacognitive awareness listening questionnaire (MALQ). MALQ was developed by Vandergrift, Goh, Mareschal, and Tafaghodtari (2006). MALQ is a 21-item questionnaire developed on a Likert scale allowing choices from 1 (*strongly agree*) to 6 (*strongly disagree*). This instrument covers five distinctive factors related to L2 listening metacognitive awareness, namely planning and evaluation, problem-solving, , person knowledge, mental translation, and directed attention. This Likert scale questionnaire is commonly used in metacognitive listening awareness studies that intend to measure learners' perceived metacognitive knowledge. Vandergrift et al. (2006) administered the instrument with nearly one thousand Iranian and French learners in Canada to validate the subscales in the instrument.

General self-efficacy scale (GSES-12). The GSES-12, developed by Bosscher and Smit (1998), includes 12 items which are designed on a 5-point Likert scale (from 1 = *disagree* to 5 = *agree*). Three subscales of self-efficacy are measured by GSES-12, namely persistence, effort, and initiative. The reliability of total self-efficacy and subscales was reported by Bosscher and

Smit (1998) as follows: initiative: 0.64, persistence: 0.64, effort: 0.63, and total self-efficacy.

Multidimensional perfectionism scale (MPS). Developed by Frost, Marten, Lahart, and Rosenblate (1990), the MPS includes 35 items to assess perfectionism. The scores of each item can range from 1 (*strongly disagree*) to 5 (*strongly agree*). There are six subscales in this questionnaire. Hawkins (2005) has validated the overall perfectionism as well as dimensions of MPS as follows: Overall perfectionism measure: 0.90, Concern over Mistakes (CM): 0.88, Parental Standards (PS): 0.83, Parental Expectations (PE): 0.84, Parental Criticism (PC): 0.84, Doubting of actions (D): 0.77, and Organization (O): 0.93.

IELTS listening comprehension test. To measure the students' second language listening ability, the listening section of IELTS (Authentic IELTS Examination Papers from Cambridge ESOL examinations, 2013) originally developed for research (Matthews & Cheng, 2015) as well as IELTS exam preparation purposes was administered. The listening test included 4 main sections, each containing 10 items totaling 40 questions, including sentence completion, multiple-choice, table completion, and diagram labeling question types. Sections 1 & 2 of the listening test dealt with the social and contextual demands of listening ability. Sections 3 & 4 included listening comprehension in academic settings. Parts 1 and 3 consisted of dialogs and parts 2 and 4 involved lectures. The task took 30 to 35 minutes plus 10 minutes for participants to transfer their answers to the answer sheet. The reliability of the listening test measured via Cronbach's alpha conducted on 230 participants of the study was $\alpha = .81$ suggesting an acceptable level of reliability of test items.

Procedures

The researchers received approval and informed consent from the universities and professors before the data collection stage. The students participated voluntarily and in return for an extra mark. Having taken the Oxford Quick Placement Test (30-35 minutes), the participants completed the demographic information form as well as the questionnaires. A code was provided to each participant for proceeding with data collection stages. The participants were given 20–25 minutes to fill out the English versions of the instruments. The investigators provided the participants with the required instructions. They were told that they have a choice to quit the investigation at any time. The investigators also made a concerted effort to follow the APA ethical standards closely within the data collection period. Students who decided to precipitate in the investigation completed the instruments in their usual class time.

Having completed the placement test and the questionnaires, the students were also given a listening proficiency test (40 items) one week later and outside their regular class time. The participants took the listening proficiency test in a language laboratory room. Before conducting the last phase of the data collection (i.e., the interview session), we scored the questionnaires and identified the perfectionism clusters (see Table 1 below). Stratified probability sampling was used to choose the sample numbers from each perfectionism cluster proportionately. Among the final 230 participants of the study, 48 (20.5%) students were chosen for the interview session. Finally, 12 non-perfectionists (24.8%), 14 maladaptive perfectionists (30.8%), and 22 adaptive perfectionists (44.4%) were recruited for the following interview session. The researchers obtained informed consent from the chosen

participants. Due to space limitations, this study reports only the quantitative part of the investigation.

Analytic Plan

After collecting the required data, the researchers performed cluster analysis to classify the participants into clusters of perfectionism. Cluster analysis approach identified three types of perfectionism (maladaptive, adaptive, and non-perfectionist). Table 1 displays the descriptive statistics of the dimensions of the MPS scale variables considering the three identified types. The three perfectionistic groups were identified as a categorical predictor variable in our model. Therefore, we created dummy coding variables to compare perfectionistic categories against the variables of the study (Field, 2009). Afterward, the researchers used the analyses to address the postulated hypotheses of the study. Data analysis was carried out via SPSS v. 25 and Amos v. 22.

Table1.

Cluster Analysis (n = 230)

Variables	Pn (n = 56)		P- (n = 72)		P+ (n = 102)		Estimates	
	M	SD	M	SD	M	SD	F	Sig.
O	14.92	1.78	21.27	1.47	27.11	1.46	572.12	.000
PE	11.96	1.48	21.50	1.21	23.56	1.79	522.97	.000
PS	17.14	2.28	30.61	1.76	32.37	1.69	646.42	.000
CM	18.50	3.44	40.66	1.92	29.74	3.43	418.89	.000
D	9.67	2.38	18.08	1.17	13.92	.74	280.24	.000
PC	12.75	1.33	18.11	1.46	11.96	1.55	197.86	.000

Data Analysis

First, we used cluster analysis to determine the perfectionistic clusters the students belonged to with respect to their obtained scores on the variables O, PE, PS, CM, D, and PC (Table 1). Moreover, the researchers launched a discriminant analysis to validate the perfectionistic group membership assigned by cluster analysis and to determine the exact number of students assigned to perfectionistic groups. The analyses confirmed group membership. Table 2 shows the correlational analyses among the variables of the study.

Table 2.

Correlation Matrix, Descriptive Statistics, and Cronbach's Alpha (n = 230)

Variables	M/SD	α	1	2	3	4	5	6
1. Perfectionism	106.33/22.44	.86	1.000					
2. Initiative	13.27/1.25	.71	.050	1.000				
3. Persistence	13.17/3.15	.79	.090	.20**	1.000			
4. Effort	17.41/4.78	.81	.23**	-.07	.09	1.000		
5. MLS	89.88/16.74	.90	.13*	.13*	.37**	.30**	1.000	
6. LA	27.94/4.62	.82	.24**	.11	.26**	.11	.53**	1.000

Note. ** $p < .01$ (2-tailed); * $p < .05$ (2-tailed).

Power analysis was run to ascertain sample size was adequate. Following the criteria proposed by Cohen (1998), Green's (1991) formula was launched to calculate the minimum number of participants needed to have a medium effect size. According to the formula $N \geq (8/f^2) + (m - 1)$, where $f^2 = 0.13$, the minimum number of participants required for only a minimum effect size was 66. The participants in the present investigation (N = 230) exceed the minimum sample size required.

After conducting the correlational analyses, the path analytical procedure was utilized to analyze the effects between variables of the study. This statistical procedure provides measures to test the direct and indirect links between multiple variables all at once. (Byrne, 2016; Cook & Campbell, 1979).

Since perfectionism was a categorical predictor variable with three levels (Pn, P-, and P+), dummy coding was used (Field, 2009). Adaptive perfectionism was chosen as the reference group because in our sample, P+ represents the majority group (n = 102). We gave this group a code of 0 for all of our dummy variables. Accordingly, we compared the other two groups against adaptive perfectionism. The resulting coding criteria yielded two dummy variables. We defined the first dummy variable as *Pn vs. P+* to compare non-perfectionists against adaptive perfectionists. The second dummy variable (*P- vs. P+*) was created to compare maladaptive perfectionism against adaptive perfectionism concerning the outcome variables (Figure 1). Having specified the hypothesized base model, tests of normality and outliers (important assumptions in SEM analyses) were run. The squared Mahalanobis distance (d^2), launched for each case (n = 234), depicted that the data contained serious multivariate outlying cases. The standardized kurtosis values (β_2) showed no departure from univariate normality (no values were greater than 7). Additionally, Mardia's normalized multivariate kurtosis estimate (c.r. = 15.90) showed that the multivariate normality assumptions were not adequately met. Normalized estimates larger than 5 are indicative of multivariate non-normal distribution (Byrne, 2016). Therefore, a z-statistic critical ratio value of 15.90 is highly suggestive of multivariate nonnormality in the sample. By excluding four outlying cases (participants 24, 73, 103, and 114) consecutively and according to the

observations farthest from the centroid (d^2), multivariate normality assumptions were closely met.

The following goodness of fit criteria were used to examine the hypothetical base model: goodness-of-fit index (GFI), comparative fit index (CFI), adjusted goodness-of-fit index (AGFI), root mean square error of approximation (RMSEA), and χ^2/df . Furthermore, the model's parameters were estimated using the maximum likelihood estimation (MLE) approach. According to Hooper, Coughlan, and Mullen (2008), the above-mentioned measures are the most pertinent among others to be reported in SEM studies.

The theoretical model was examined and the goodness-of-fit criteria were obtained: $\chi^2 = 13.96$, $p = .030$, GFI = .98, AGFI = .92, CFI = .97, RMSEA = .076, PCLOSE = .172, and $\chi^2/df = 2.33$. According to Hooper et al.'s (2008) criteria, the results suggest that the calculated fit indices of the data for the hypothesized base model are entirely adequate except for the χ^2/df that should be smaller than 2. As a result, a model modification was carried out in order to refine the model. Accordingly, the parsimonious model was requested by removing non-significant paths. The hypothesized model was stripped of four non-significant paths. The gray paths in Figure 2 show the removed paths). The goodness-of-fit measures were reanalyzed for the modified model (Table 3).

Table 3.

Goodness of Fit Measures for the Base and Revised Models

Model	Df	χ^2/df	GFI	AGFI	CFI	RMSEA	PCLOSE
Hypothetical model	6	2.33	.98	.92	.97	.076	.172
Revised model (non-significant paths were removed)	5	1.09	.99	.96	.99	.021	.646

The final measurement model, as presented in Table 3, fit the data very well: $\chi^2 = 5.48$, $p = .360$, GFI = .99, AGFI = .96, CFI = .99, RMSEA = .021, and $\chi^2/df = 1.09$. Figure 2 presents the final structural model. The scores depicted on paths are standardized coefficients.

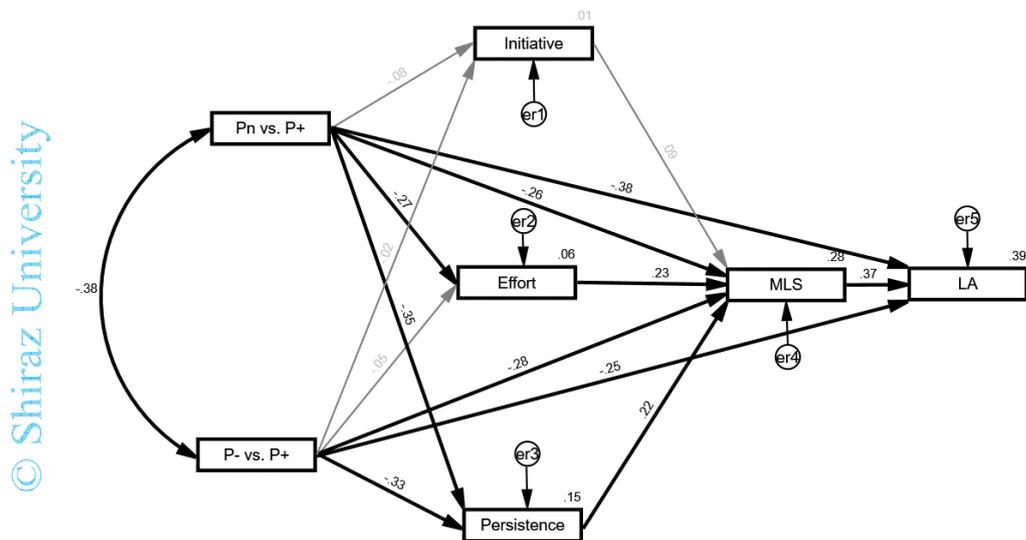


Figure 2. Final structural model (the gray arrows show non-significant effects)

Path Analysis

The significant/non-significant links among variables in the final model are shown in Table 4.

Table 4.

Regression Weights (Final Model)

Paths			R.W.	S.E.	C.R.	P	S.R.W.
Initiative	←	Pn vs. P+	-.246	.207	-1.185	.236	-.085
Effort	←	Pn vs. P+	-2.992	.768	-3.898	***	-.270
Effort	←	P- vs. P+	-.508	.711	-.715	.474	-.049
Persistence	←	P- vs. P+	-2.260	.448	-5.041	***	-.333
Persistence	←	Pn vs. P+	-2.581	.484	-5.329	***	-.352
Initiative	←	P- vs. P+	-.047	.192	-.247	.805	-.018
MLS	←	Persistence	1.151	.327	3.524	***	.216
MLS	←	Initiative	1.191	.763	1.561	.119	.089
MLS	←	P- vs. P+	-10.075	2.298	-4.385	***	-.279
MLS	←	Pn vs. P+	-10.133	2.565	-3.951	***	-.260
MLS	←	Effort	.818	.202	4.040	***	.233
LA	←	MLS	.103	.016	6.491	***	.372
LA	←	Pn vs. P+	-4.066	.653	-6.228	***	-.378
LA	←	P- vs. P+	-2.533	.595	-4.254	***	-.254

Note. Regression weight (R.W.), standard regression weight (S.R.W.); Critical Ratio (C.R.); *** $p < .001$.

These data enable us to characterize the findings that correspond to the three hypotheses of the study. The direct, indirect, and total effects in the model are presented in Figure 2 and Table 5.

Table 5.

Standardized Effects in the Final Model

Effects	Direct	Indirect	Total	SMC
<i>On MLS</i>				
Pn vs. P+	-.260	-.146	-.406	MLS = .280
P- vs. P+	-.279	-.085	-.364	
Initiative	.089	-	.089	

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Effects	Direct	Indirect	Total	SMC
Effort	.233	-	.233	
Persistence	.216	-	.216	
<i>On LA</i>				
Pn vs. P+	-.378	-.151	-.529	LA = .387
P- vs. P+	-.254	-.136	-.390	
Initiative	-	.033	.033	
Effort	-	.087	.087	
Persistence	-	.080	.080	
MLS	.372	-	.372	
<i>On Initiative</i>				
Pn vs. P+	-.085	-	-.085	Initiative = .006
P- vs. P+	-.018	-	-.018	
<i>On Effort</i>				
Pn vs. P+	-.270	-	-.270	Effort = .065
P- vs. P+	-.049	-	-.049	
<i>On Persistence</i>				
Pn vs. P+	-.352	-	-.352	Persistence = .145
P- vs. P+	-.333	-	-.333	

Note. Squared Multiple Correlation (SMC)

As hypothesized (Hypothesis 1), perfectionism contributes significantly and directly to persistence ($\beta_{Pn \text{ vs. } P+} = -.352, p < .001$; $\beta_{P- \text{ vs. } P+} = -.333, p < .001$), MLS ($\beta_{Pn \text{ vs. } P+} = -.260, p < .001$; $\beta_{P- \text{ vs. } P+} = -.279, p < .001$), and LA ($\beta_{Pn \text{ vs. } P+} = -.378, p < .001$; $\beta_{P- \text{ vs. } P+} = -.254, p < .001$). Considering the direct effects of perfectionism on initiative, no significant paths were observed (unlike Hypothesis 1). Also, the analysis of direct effects of perfectionism on effort indicated that while Pn vs. P+ \rightarrow effort ($\beta = -.270, p < .001$) was significant, the path P- vs. P+ \rightarrow effort ($\beta = -.049, p > .05$) was not statistically significant. A point worthy of note here is that all significant beta values related to perfectionism are negative. This is due to the fact that (as explained above) we created two perfectionism categories coded with 0 and 1

as dummy variables. Since we chose adaptive perfectionism as the reference group, we assigned the value of 0 for P+ in both dummy variables so that we could compare P- and Pn with P+. So, we could say that the change in variables goes down as a person changes from P+ to Pn or P-. In sum, adaptive perfectionists significantly outperformed non-perfectionists and maladaptive perfectionists in persistence, MLS, and LA. It is also safe to say that the three perfectionistic groups in our study obtained similar scores on the initiative self-efficacy subscale and the change in the initiative is the same for the three groups. Concerning effort, P+ participants outperformed the Pn students; however, no statistically difference was observed between adaptive and maladaptive groups in this regard.

The analyses of the indirect effects showed that perfectionism categories had significant indirect effects on MLS ($\beta_{Pn \text{ vs. } P+} = -.146$, $\beta_{P- \text{ vs. } P+} = -.085$) and LA ($\beta_{Pn \text{ vs. } P+} = -.151$, $\beta_{P- \text{ vs. } P+} = -.136$). Similarly, P+ group outperformed Pn and P- groups in both cases. The standardized total effects are presented in Table 5.

In Hypothesis 2 of the study, we predicted that self-efficacy components would directly and positively influence MLS and positively and indirectly impact LA. The results indicated that effort ($\beta = .233$, $p < .001$) and persistence ($\beta = .216$, $p < .001$) exerted significant direct effects on MLS. The initiative \rightarrow MLS path was not significant ($\beta = .089$, $p > .05$). Additionally, the indirect effects of initiative, effort, and persistence on LA through MLS were not statistically significant.

The results are also consistent with Hypothesis 3. Thus, MLS contributes significantly and directly to LA ($\beta = .372$, $p < .001$).

In this model, according to Squared Multiple Correlations (SMC) estimates, the predictors account for 38.7% of the variance in LA and 28% in

MLS. Moreover, perfectionism explains 6.5% of variability of effort and 14.5% of persistence. Perfectionism does not account for the variability of initiative (Table 5).

In addition, the following questions were also addressed in this research.: Which self-efficacy subscale was most influenced by perfectionism? Which factor has the most significant impact on MLS and LA? Which variable exerted the most relevant influence in the final path analysis model?

Looking into the total effects indicated in Table 5, among three self-efficacy subscales, persistence is most influenced by perfectionism ($\beta = -.352$). Because perfectionism (Pn vs. P+) has the largest total impacts on persistence ($= -.352$), it is the most important predictive variable., effort ($\beta = -.270$), MLS ($\beta = -.406$), and LA ($\beta = -.529$). MLS is the second influential variable explaining variance in LA ($\beta = .372$). In sum, perfectionism and MLS exerted the most relevant influence in the final path analysis model.

Discussion

The overarching goal of the present investigation was to test a model connecting multidimensional perfectionism to MLS use and L2 listening comprehension through the mediating effects of self-efficacy components. Having been modified, the proposed model illustrated some major findings. These findings are discussed with reference to the detailed hypotheses of the study.

Consistent with our first hypothesis, perfectionism (P- and P+) contributed significantly to effort. This finding is consistent with earlier studies (Locicero & Ashby, 2000; Stoeber & Eissman, 2007; Stoeber & Eysenck, 2008) while inconsistent with Harper, Eddington, and Silvia's (2016) investigation in which perfectionism did not explain effort. One potential

explanation for this discrepancy is that effort, in these studies, has been defined under conceptually diverse constructs and measured via varied instrumentation criteria. L2 listening comprehension entails a considerable amount of effort investment both in prior task preparation and online processing during the listening activities. As a result, adaptive perfectionists with higher amounts of effort investment may display better listening comprehension as well as test performance in L2 listening tasks.

The results also demonstrated that adaptive perfectionists significantly outperformed maladaptive and non-perfectionists in the persistence self-efficacy subscale. Previous research supports the theoretical connections between adaptive perfectionism and persistence (e.g., Stoeber & Corr, 2015, 2017). L2 listening also demands high levels of persistence. Standard international examinations entail listening to long conversations and dialogues. Not holding on to long conversations and monologues due to a lack of persistence may influence maladaptive and non-perfectionist's performance on L2 listening ability tests.

A prominent finding in this investigation was that perfectionism showed significant direct as well as indirect effects on MLS use and consequently on LA. Adaptive perfectionists in our study surpassed other two perfectionist groups in the use of MLS and outperformed them in LA. This finding echoes those reported by Amini and Shamlou (2014), Mills and Blankstein (2000), and Rostami Abusaeedi and Khabir (2017) and confirms that adaptive perfectionism is attributed to better use of metacognitive strategies. This finding implies that EFL learners' listening comprehension ability is partly explained by their perfectionistic attitudes. Moreover, perfectionism can also affect learners' attitudes about their abilities. Interestingly, perfectionistic attitudes coupled with self-efficacy beliefs about one's abilities can

significantly influence their performance in L2 listening comprehension (Razmi et al., 2020).

Conversely and inconsistent with our first hypothesis, we found no support for a direct effect of perfectionism on the initiative self-efficacy component. This is also inconsistent with the findings reported by Locicero and Ashby (2000), Mills and Blankstein (2000), Bieling, Israeli, and Antony (2004), Beauregard (2012), and Chang, Chou, Liou, and Tu (2016) suggesting that adaptive perfectionists are inclined to be more willing and prepared at the outset of initiating tasks leading to the application of more productive learning strategies. We believe the prime cause of the discrepancy is the fact that perfectionism can affect self-efficacy to varying levels according to the conditions where the learner should cope with various learning activities (Farag, 2020).

Surprisingly, perfectionism was observed to exert significant indirect effects on LA through self-efficacy subscales and MLS use. This interesting finding demonstrates how important it is to explore mediational studies in contextual and psychological factors related to language acquisition. While some significant relationships may really exist between the variables, exclusion of some other variables will obscure the true associations among constructs. In this indirect effect analysis, adaptive perfectionists obtained significantly higher scores on LA.

With regards to the second postulated hypothesis, whilst the correlational analyses showed significantly positive links between self-efficacy components and MLS and between persistence and LA, the results in the final path model indicated that ran contrary to our proposed hypothesis and did not confirm significant indirect paths from self-efficacy subscales to LA. However, effort and persistence showed significant direct effects on MLS.

This final finding is partly consistent with the one reported by Goudarzi et al. (2014), Seo (2008), and Mills and Blankstein (2000). These studies have concluded that higher investment of effort, persistence, and initiative self-efficacy components would lead to better metacognitive strategy use and self-regulated learning. The non-significant indirect paths from self-efficacy components to LA in our study are in contrast with the results reported by a great body of literature (e.g., Graham, 2011; Mills et al., 2006; Rahimi & Abedi, 2014; Yabukoshi, 2018). From a methodological perspective, this discrepancy calls for further analysis of the relationships among the variables in mediational studies to clearly identify the true nature of effects among variables (Stewart & George-Walker, 2014).

With respect to the third hypothesis of the present study, our model confirmed that MLS exerts a significant direct influence on learners' LA. This significant path is in accordance with the empirical and theoretical investigations available in the literature (e.g., Goh, 2019; Ghorbani Nejad & Farvardin, 2019). This important finding illustrates the decisive role of metacognition in L2 learners' listening comprehension.

Finally, this study also sought to answer some relevant questions regarding the identification of the most influential variables in our proposed model. Accordingly, perfectionism and MLS were the most important variables in our path model. This finding can be regarded as an empirically relevant frame of reference for the study of perfectionism, MLS, and L2 listening comprehension. As an elaborate, multifaceted personality attribute, perfectionism can exert tremendous impacts on L2 learners' performance in listening comprehension and other learning skills (Dickinson & Dickinson, 2015).

Conclusion

Examining a path model, the goal of this research was to present a novel model of the connection between perfectionism and L2 listening comprehension via the mediating impacts of self-efficacy subscales and MLS. A significant finding in our investigation was that perfectionism and MLS play significant roles in L2 learners' listening comprehension. Having this important finding at disposal, the students' listening ability can be enhanced through the instruction of MLS in ways that favor different perfectionistic attitudes on the part of the learners. Teachers can play a significant role in this regard. Teachers should become more aware of these constructs and, as a result, assist students by providing appropriate instructions that meet the needs of individuals with different levels of perfectionism and self-efficacy. Teachers should also familiarize the learners with concepts such as metacognition, self-efficacy, and perfectionism to raise their awareness and help them choose appropriate metacognitive listening strategies. L2 learners' successful listening task accomplishment depends on myriads of psychological factors the learners bring to the educational settings. Curriculum developers and material designers should take these psychological factors into account by developing curriculums and materials that best suit the needs of the learners with different types of perfectionism and varying levels of self-efficacy. Individual differences should also be considered by teacher educators, and this should be reflected in their teacher education programs. L2 listening comprehension also entails adequate levels of effort and persistence investment. By providing sufficient instructions, students with different perfectionistic attitudes can benefit from self-regulated metacognitive instructions so that they could exhibit effort and persistence in the face of task complexities they encounter (Deuling, Burns, 2017).

From a research methodological perspective, we applied the CDST approach (Dörnyei, & Ryan, 2015). In this approach, rather than being treated as monolithic discrete structures, the determinant variables of a phenomenon are considered to be multifaceted componential elements of a systematically dynamic and holistic model (Larsen-Freeman, 2015). To illustrate an example of CDST approach in the present study, interestingly, while correlational analyses yielded significant relationships between self-efficacy components and MLS as well as LA, the overall path model did not show any significant effects. We are inclined to admit that all the themes of CDST are not addressed in our study. Main themes of CDST such as change, feedback sensitivity, adaptation, and contextual contingencies (Larsen-Freeman, 2015) can be an interesting venue for further research.

Results from this study must be interpreted in the context of a number of limitations. First, a significant part of our data was collected through quantitative self-report scales. The use of self-report instruments may introduce common method and experimenter bias, social desirability, and halo effect (Joe, Hiver, & Al-Hoorie, 2017; LoCicero & Ashby, 2000). This demands an expansion of instrumentation criteria to utilize various techniques such as think-aloud protocols and interviews to gather reliable data. Accordingly, Future studies can utilize multiple qualitative and quantitative instruments to maximize the validity and generalizability of the findings. Second, our research could not explain all the conceptual links among the variables proposed in our hypotheses. Accordingly, some seemingly established theoretical links in the previous literature were not confirmed. For example, contrary to the available theory, the initiative self-efficacy subscale did not render any significant effects in our model. We believe such discrepancy is partly due to the sampling criteria we had to adopt in our study.

Continued research with a wider range of stakeholders and learners with varying degrees of L2 proficiency would be beneficial. Third, Following the theoretical conceptualizations available in the literature, we examined self-efficacy subscales mediating the link between perfectionism and L2 listening. Self-efficacy, however, is not the only relevant construct related to perfectionism. The theoretical, as well as the empirical realm of perfectionism, is filled with a plethora of constructs pertinent to second language listening and other skills (Dickinson & Dickinson, 2015). As notable examples, perfectionism has been empirically addressed with respect to related variables such as anxiety (Gregersen & Horwitz, 2002; Seo, 2008; Pishghadam & Akhoondpoor, 2011), L2 willingness to communicate (Liu, 2007; Liu & Jackson, 2008), self-esteem (Deuling & Burns, 2017), speaking skills Yoshida (2013), motivation (Kang, 2006), and test performance (Stoeber et al., 2008) among others.

Perfectionism, therefore, deserves further investigation and it would also be valuable for subsequent research to explore the causal impacts of perfectionism. We believe an interesting extension of the present study can be investigating perfectionism in association with psychological and contextual factors, including foreign language anxiety, L2 willingness to communicate, shyness, self-confidence, classroom climate, teacher immediacy, and test performance.

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Appendix A

Male Female

Metacognitive Awareness Listening Questionnaire (MALQ) Vandergrift et al. (2006)

1. Strongly disagree 2. Disagree 3. Partially disagree 4. Partially agree 5. Agree 6. Strongly agree

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1. Before I start to listen, I have a plan in my head for how I am going to listen.	1	2	3	4	5	6
2. I focus harder on the text when I have trouble understanding.	1	2	3	4	5	6
3. I find that listening in French is more difficult than reading, speaking, or writing in English.	1	2	3	4	5	6
4. I translate in my head as I listen.	1	2	3	4	5	6
5. I use the words I understand to guess the meaning of the words I don't understand.	1	2	3	4	5	6
6. When my mind wanders, I recover my concentration right away.	1	2	3	4	5	6
7. As I listen, I compare what I understand with what I know about the topic.	1	2	3	4	5	6
8. I feel that listening comprehension in English is a challenge for me.	1	2	3	4	5	6
9. I use my experience and knowledge to help me understand.	1	2	3	4	5	6
10. Before listening, I think of similar texts that I may have listened to.	1	2	3	4	5	6
11. I translate key words as I listen.	1	2	3	4	5	6
12. I try to get back on track when I lose concentration.	1	2	3	4	5	6
13. As I listen, I quickly adjust my interpretation if I realize that it is not correct.	1	2	3	4	5	6
14. After listening, I think back to how I listened, and about what I might do differently next time.	1	2	3	4	5	6
15. I don't feel nervous when I listen to English.	1	2	3	4	5	6

16. When I have difficulty understanding what I hear, I give up and stop listening.	1	2	3	4	5	6
17. I use the general idea of the text to help me guess the meaning of the words that I don't understand.	1	2	3	4	5	6
18. I translate word by word, as I listen.	1	2	3	4	5	6
19. When I guess the meaning of a word, I think back to everything else that I have heard, to see if my guess makes sense.	1	2	3	4	5	6
20. As I listen, I periodically ask myself if I am satisfied with my level of comprehension.	1	2	3	4	5	6
21. I have a goal in mind as I listen.	1	2	3	4	5	6

Appendix B
General Self-efficacy Scale (GSES-12)
Bosscher & Smit (1998)

Disagree..... 5. Agree

1. If something looks too complicated, I will not even bother to try it.	1	2	3	4	5
2. I avoid trying to learn new things when they look too difficult.	1	2	3	4	5
3. When trying something new, I soon give up if I am not initially successful.	1	2	3	4	5
4. When I make plans, I am certain I can make them work.	1	2	3	4	5
5. If I can't do a job the first time, I keep trying until I can.	1	2	3	4	5
6. When I have something unpleasant to do, I stick to it until I finish it.	1	2	3	4	5
7. When I decide to do something, I go right to work on it.	1	2	3	4	5
8. Failure just makes me try harder.	1	2	3	4	5
9. When I set important goals for myself, I rarely achieve them.	1	2	3	4	5
10. I do not seem to be capable of dealing with most problems that come up in my life.	1	2	3	4	5
11. When unexpected problems occur, I don't handle them very well.	1	2	3	4	5
12. I feel insecure about my ability to do things.	1	2	3	4	5

Appendix C

Multidimensional Perfectionism Scale (MPS)

Frost et al. (1990)

1. Strongly Disagree..... 5. Strongly Agree

1. My parents set very high standards for me.	1	2	3	4	5
2. Organization is very important to me.	1	2	3	4	5
3. As a child, I was punished for doing things less than perfectly.	1	2	3	4	5
4. If I do not set the highest standards for myself, I am likely to end up a second rate person.	1	2	3	4	5
5. My parents never tried to understand my mistakes.	1	2	3	4	5
6. It is important to me that I be thoroughly competent in everything I do.	1	2	3	4	5
7. I am a neat person.	1	2	3	4	5
8. I try to be an Organized person.	1	2	3	4	5
9. If I fail at work/school, I am a failure as a person.	1	2	3	4	5
10. I should be upset if I make a mistake.	1	2	3	4	5
11. My parents wanted me to be the best at everything.	1	2	3	4	5
12. I set higher goals than most people.	1	2	3	4	5
13. If someone does a task at work/school better than I, then I feel like I failed the whole task.	1	2	3	4	5
14. If I fail partly, it is as bad as being a complete failure.	1	2	3	4	5
15. Only outstanding performance is good enough in my family.	1	2	3	4	5
16. I am very good at focusing my efforts on attaining a goal.	1	2	3	4	5
17. Even when I do something very carefully, I often feel that it is not quite right.	1	2	3	4	5
18. I hate being less than best at things.	1	2	3	4	5
19. I have extremely high goals.	1	2	3	4	5
20. My parents have expected excellence from me.	1	2	3	4	5
21. People will probably think less of me if I make a mistake.	1	2	3	4	5
22. I never felt like I could meet my parents' expectations.	1	2	3	4	5
23. If I do not do as well as other people, it means I am an inferior human being.	1	2	3	4	5
24. Other people seem to accept lower standards from themselves than I do.	1	2	3	4	5
25. If I do not do well all the time, people will not respect me.	1	2	3	4	5
26. My parents have always had higher expectations for my future than I have.	1	2	3	4	5

27. I try to be a neat person.	1	2	3	4	5
28. I usually have doubts about the simple everyday things I do.	1	2	3	4	5
29. Neatness is very important to me.	1	2	3	4	5
30. I expect higher performance in my daily tasks than most people.	1	2	3	4	5
31. I am an organized person.	1	2	3	4	5
32. I tend to get behind in my work because I repeat things over and over.	1	2	3	4	5
33. It takes me a long time to do something "right".	1	2	3	4	5
34. The fewer mistakes I make, the more people will like me.	1	2	3	4	5
35. I never felt like I could meet my parents' standards.	1	2	3	4	5