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Causal influences of mental overload and self-efficacy on academic performance

Elizabeth Jane Barbo

CAUSAL INFLUENCES OF MENTAL OVERLOAD AND

SELF-EFFICACY ON ACADEMIC PERFORMANCE

A Thesis

Presented to the

Faculty of

California State University,

San Bernardino

In Partial Fulfillment

of the Requirements for the Degree

Masters of Arts

in

Psychology:

General Experimental Concentration

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by

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Approved by:

Matt L. Riggs, Chair, Psychology   5/21/97

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Abstract

In the past, literature has proposed relationships between several different factors. Multiples roles influence performance and stress, good performance increases self-efficacy, high self-efficacy increases performance, and increased amounts of stress decrease performance. While performance can be measured in different ways, the literature has supported using academic achievement as a performance indicator. Considering these relationships, three models were proposed that incorporate these variables. To assess multiple roles and role overload, scales were developed and tested that expanded the past measurements. Model one proposed that multiple roles contributed to role overload. Role overload then influenced stress, which influenced self-efficacy, which influenced grade point average. Model two proposed that self-efficacy would be a moderator between multiple roles and role overload. Role overload then influenced stress, which influenced grade point average. Model three proposed that self-efficacy influenced the multiple roles. These roles contributed to role overload, which influenced stress, which influenced grade point average. Structural equation model analysis was used to test the models. While none of the models had a strong fit, there were strong paths that supported the theoretical design. These paths were the relationship between stress and self-efficacy, and self-efficacy and grade point average. Post-hoc analysis provided a "best-fit" model that is suggested for future research.

Acknowledgments

I would like to express my appreciation to Dr. Matt Riggs, my committee chair, for his help an guidance. Working with him has been an educational and enjoyable experience. I would also like to thank my other committee members, Dr. Wong and Dr. Koshino, for their suggestions and help over the course of this study. A special thanks to Dr. Jan Kottke, your advise and help has always proven invaluable.

Finally, I give my love and thanks to my parents who have always given me their love and support. I could not have done this without you.

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Introduction

It has been proposed that multiple roles may contribute to stress and mental

overload. Baruch and Barnett (1986) proposed that as women take on more roles (above

and beyond wife and mother), their emotional and physical health will deteriorate. This

proposition has received some support (e.g., Facione, 1994; Stephens, Franks, Townsend,

1994; Woods, 1985), but others have not concurred (e.g., Campion & McClelland, 1993;

Facione, 1993; Kopp & Ruzicka, 1993). In some studies, adding the role of worker to

women's other roles have increased health, energy, self-esteem, social contacts, (e.g.,

Facione, 1993; Froberg, Gjerdingen, & Preston, 1986) and work performance (e.g.,

Campion & McClelland, 1993). Although the theories on multiple roles are usually

discussed in regard to women, there have been a few supportive studies looking at both

genders (e.g., Gore & Mangione, 1983; Simon, 1995; Verbrugge, 1982); nevertheless

most of the studies only referred to the role of worker added to parent and spouse.

The capacity model of attention may help explain when multiple roles will result in

role overload. This model proposes that there is a limit to the capacity of information a

person can attend to and process at one time (Kahneman, 1973). Multiple roles may

increase the probability that a person will reach the limit of their ability to process all that

is required to perform the many tasks required by multiple roles.

Stress is another factor that may contribute to role overload (Fisher, 1986).

Although certain amounts of stress have been shown to be helpful in performance,

excessive amounts decrease mental ability (Fisher, 1986; Fisher, 1994). As the demands

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on mental capacity increase to the point of overload, there is often a strategic attempt to sustain performance (Fisher, 1986). These strategies include either changing the situation or changing the feelings the person holds about the situation (e.g., pretend it does not exist) (Fisher, 1994). In either case, these strategies may result in a decrease in performance (Fisher, 1986).

Another important influence on performance is self-efficacy. Self-efficacy is the belief a person holds about their ability to perform a task (Bandura, 1977; 1982; 1989a; 1989b). It has been found that when this belief is high, it often buffers against failure (Bandura, 1989a). However, when a person's self-efficacy is low, it can contribute to failure (Bandura, 1989b; Soloman & Draine, 1995). Failing erodes subsequent levels of self-efficacy (Bandura, 1982). It has been shown that when the number of tasks is increased (one outcome of role overload) the rate of success decreases (Goode, 1960).

To further investigate these areas, the topics of multiple roles, role overload, stress, and self-efficacy will be discussed in depth. Performance will also be discussed as it pertains to academic achievement.

Literature Review

Multiple Roles and Mental Role Overload

Everyone has more than one role in their lives. In many cases, these roles include that of spouse, parent, or employee; but it could also be student, friend, or care giver. It has been theorized that the number of roles in which one participates may predict role strain (Goode, 1960; Froberg, Gjerdingen, & Preston, 1986). Goode (1960) presents

several reasons that multiple roles contribute to role strain. First, participating in a given role may not be unusually difficult or unpleasant, but it has constant requirements. Second, having multiple roles often creates situations where there is not enough time or resources to accomplish the goal, causing internal discord. Third, since many roles require multiple responses, there is often an imbalance between quality and quantity of performance. This personal imbalance also contributes to internal discord. When these three factors converge, there is role overload (Goode, 1960). Considering that most people, by choice or design, have more than one role it is not surprising that people feel role overload and experience the outcomes of that overload.

Although the terms are often used interchangeably, multiple roles and role overload should be defined separately. Multiple roles involve the life choices a person makes (i.e., to be married, a parent, spouse, etc.). Multiple roles contribute to stress which can lead to mental overload (also referred to as role strain and role overload). In the past, this influence has been researched by applying one of the hypotheses from the literature that address multiple roles and their effects (Goode, 1960; Gove & Tudor, 1973; Marks, 1977; Sieber, 1974; and Verbrugge, 1982). One model is based on the scarcity hypothesis. Based on Goode's (1960) theory of role obligation, the scarcity hypothesis states that role strain (role overload) is a result of time constraints, discrepancies in performance expectations (conflict), or both (Froberg, Gjerdingen, & Preston, 1986). This can lead to a break down in physical and/or mental health. An alternative model of role strain is the expansion hypothesis. This hypothesis maintains that any negative

aspects of role strain that may occur are balanced with more important gains such as increased status, privilege, self-esteem, etc. (Froberg, Gjerdingen, & Preston, 1986; Marks, 1977; Sieber, 1974; Verbrugge, 1982). These gains lead to an overall positive outcome as a result of multiple roles.

In some research, the scarcity hypothesis has been supported, indicating that women have an increased risk of physical and/or emotional illness with every role they add (e.g., Facione, 1994; Stephens, Franks, & Townsend, 1994; Woods, 1985). However, other results lend support to the expansion hypothesis, indicating that, as women increase the number of roles, they increase their health, energy, self-esteem, happiness, and social contacts (Campion & McClelland, 1993; Froberg, Gjerdingen, & Preston, 1986; Facione, 1993; Kopp & Ruzicka, 1993). As Baruch and Barnett (1986) argue, neither hypothesis explains precisely how different roles produce different influences. Baruch and Barnett (1986) discuss how some roles have a greater positive influence then others (e.g., paid worker vs. mother). It appears that it is the qualitative, not quantitative, experience of the multiple roles that contributes to the improved physical and emotion well-being of the individual (Waldron & Jacobs, 1989).

There are several reasons that the qualitative experience of the person is considered one of the more important influences in outcome satisfaction. Campion and McClelland (1993) discuss three factors in role increase that may change the qualitative experience, thus determining its effect as a cost or a benefit to women. These factors are based on either increasing the requirements of the task or increasing the knowledge of the

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employee (Campion & McClelland, 1993). First, if an additional role increases the woman's sense of authority or responsibility, it may enrich her experience. Second, if roles are simply added without changing the level of authority or responsibility, it may not be enriching (Campion & McClelland, 1993; Froberg, Gjerdingen, & Preston, 1986; Garden, 1991; Hothschild & Manchung, 1989; and Kopp & Ruzicka, 1993). Finally, multiple roles may enhance identity by providing her with new skills that she can apply to her job and use to increase her ability. Increasing the role requirements without increasing knowledge often has negative influences on performance (Campion & McClelland, 1993). Data indicated that the increase in a task's requirement, as opposed to increases in knowledge, influenced the likelihood of making errors while increasing knowledge had more benefits then costs (Campion & McClelland, 1993; Garden, 1991). Considering the potentially negative effects of multiple roles, it is important to find ways to maintain or enhance the positive outcomes of having many roles.

<u>The Capacity Model and Stress</u>

The definition and ramifications of role overload have been discussed in the literature, but providing a model for the results has not. The cognitive capacity model of attention may provide an explanation of role overload and its negative performance. This capacity model states that there is a limit in the amount of information a person can process at one time (Kahneman, 1973). If the capacity model can be applied to role overload, different tasks would require different levels of mental energy. In this case, easy tasks would require little mental energy and difficult tasks would require more

(Kahneman, 1973). Once this capacity has been exceeded, performance hesitates, or ceases completely (Kahneman, 1973). Although the capacity model is a theory of short-term attention, it is may provide a theoretical explanation for role overload.

To use the capacity model of attention requires assessing the amounts of mental capacity being depleted. Physical tasks add to mental work load, but there is psychological depletion also. Fisher (1986) discussed stress as a contributor to mental load. Although certain levels of stress have been shown to be helpful, excessive stress decreases mental ability (Fisher, 1986 and Fisher, 1994). As the demands on the mental capacity increase to the point of overload (from stress, tasks, or any other influence), there is often a strategic attempt to sustain performance (Fisher, 1986). These strategies usually fall into one of two categories. First, the person may make an attempt to change the situation that is causing difficulty (e.g., remove some of the pressure so that performance can be maintained) (Fisher, 1994). Second, the person may attempt to change their cognitive or emotional view about the situation (e.g., pretend it does not exist, or look at it as a challenge instead of a problem). Unfortunately, this later strategy can cause more stress if the problem is never resolved (Fisher, 1994). These strategies can result in negative outcomes such as: not attending to some aspect of the task, making guesses without considering the information given, or procrastinating and bunching their actions or responses together (Fisher, 1986). Considering stress' influences on performance, its relationship to role overload should also be considered.

<u>Self-Efficacy</u>

Self-efficacy is the judgment a person makes about their personal ability to complete a task that affects their motivation, thought, and performance (Bandura, 1982; 1989a). According to Bandura (1982), specific self-efficacy is developed through three forms of social learning. The first is performance. If a person succeeds at a task, their belief concerning their own self-efficacy will increase. In contrast, if the person consistently fails at a task, their self-efficacy will decline (e.g., Bandura & Cervone, 1986; Sexton & Tuckman, 1991). A person may also increase their level of self-efficacy by vicarious experiences. By observing people that are assumed to be of the same level of competence achieve success the witness may increase his/her belief in his/her own ability. The third way self-efficacy may be manipulated according to social learning theory is through verbal persuasion (Bandura, 1982). This form of improvement is considered a more short-term change and works best with people who already possess some level of positive self-efficacy.

The majority of the literature describing self-efficacy as a theoretical construct defines it as task specific (Bandura, 1977; 1982; 1989a; 1989b; Berry, 1989). However, self-efficacy has also been described as a more generalized concept. Shelton (1990) defines general self-efficacy as the belief a person holds about his/her competence in goal achievement and overcoming barriers that arise during daily activities. Although studies have found a difference between general and specific self-efficacy, they are highly correlated in their predictive ability concerning performance. No significant benefit has

been found for measuring specific self-efficacy instead of general self-efficacy (Shelton, 1990; Watt & Martin, 1994; Woodruff & Cashman, 1993).

Although self-efficacy has been measured in different ways, it has been a consistent predictor of motivation, attitudes, and performance outcomes. Self-efficacy contributes to the judgment a person makes about the level of effort to expend toward the task and how long to persevere toward task attainment (i.e., motivation) (Bandura, 1982; 1989b; Bandura & Cervone, 1983; 1986). In many studies, performance is positively associated with self-efficacy (e.g., Bandura & Schunk, 1981; Brown & Inouye, 1978; Schunk, 1981). However, in some situations, when people view themselves as extremely capable, they prepare less. This can result in a decreased level of successful performances in task obtainment (Bandura, 1982).

Furthermore, if a person judges themselves as unable to perform a task (has low self-efficacy), they will avoid the task (Bandura, 1977). People with higher self-efficacy may not avoid the task because they utilize a higher level of cognitive visualization. The ability to visualize provides a guide for success that offers solutions to the problem at hand (Corbin, 1972; Feltz & Landers, 1983; Kazdin, 1978). Self-efficacy can also be a buffer against the stress and depression possible during a threatening or trying experience (Bandura, 1989b; Mounsey, 1992; Soloman & Draine, 1995). In general, high self-efficacy increases cognitive expectations for future behavior as well as provides possible solutions to current dilemmas (Ozer & Bandura, 1990; Sexton & Tuckman, 1991).

Finally, when a person has a high level of self-efficacy, they have an increased likelihood of obtaining a performance goal (Bandura, 1989a). This finding has been replicated in many performance situations (e.g., Bandura & Cervone, 1983; Kumpfer & Turner, 1991; Locke, Fredrick, Lee, & Bobko, 1984; Waldersee, 1994). Of special interest to this study is the positive influence of self-efficacy on academic achievement (Lent, Brown, & Larkin, 1984; Phillips & Russell, 1994; Poidevant, Loesch, & Wittmer, 1991; Williams, 1994; Zimmerman, Bandura, & Martinez-Pons, 1992)

Academic Achievement and Motivation

While performance in many areas has been measured, academic achievement in college seems particularly relevant since many students are involved in a number of roles. School performance and academic achievement have frequently been studied. Researchers have assessed factors such as social behavior (e.g., DeBaryshe, Patterson, Capaldin, 1993), academic self-concept (e.g., Marsh, 1984, 1992), learning strategies (e.g., Pintrich & DeGroot, 1990), academic engagement (e.g., Gamoran & Nystrand, 1991), and parenting style (e.g., Baumrind, 1991) as indicators of performance and motivation.

As discussed in the previous section, self-efficacy has been found to have a positive influence on many areas of a person's life and work performance. It has also been found to positively influence school performance and motivation at all levels of education (e.g., Feldmann & Martinez-Pons, 1995; Phillips & Russell, 1994; Pintrich, Roeser, & DeGroot, 1994; Poidevant, Loesch, & Wittmer, 1991; Williams, 1994). Higher levels of self-efficacy were found to be significantly associated with advanced cognitive methods of

learning, deeper processing of information, and better understanding of materials (Pintrich, Roeser, DeGroot, 1994). These findings applied to the understanding of general subject matter, as well as to task-specific knowledge and understanding (Williams, 1994). The academic requirements of an advanced college education, such as teaching and researching, were also found to be significantly influenced by self-efficacy (Phillips, & Russell, 1994; Poidevant, Loesch, & Wittmer, 1991).

Motivation is another predictor of school achievement that has been studied. Findings indicate that when a student has high intrinsic motivation to achieve, they set higher goals for themselves and are more likely to achieve the goals (Pintrich, Roeser, & DeGroot, 1994; Sinkavich, 1994; Zimmerman, Bandura, and Martinez-Pons, 1992). It has been suggested that there are several factors influencing motivation. Self-efficacy has been a consistent correlate (Pintrich, Roeser, & DeGroot, 1994; Zimmerman, Bandura, and Martinez-Pons, 1992). Other factors include perceived academic self-determination and perceived academic competence, both of which are related to self-efficacy (Fortier, Vallerand, & Guay, 1995). Although motivation and self efficacy are highly correlated, it is unclear in what direction the influence occurs (Sinkavich, 1994).

Hypotheses

From the literature, several relationships have been established. One relationship is multiple roles' contribution to role overload. Role overload also influences performance, although the nature of this relationship is unclear. Stress has also been shown to influence performance with variable results. Finally, self-efficacy influences a person's performance.

Considering that all of these factors influence performance, and that performance also influences self-efficacy a more complex relationship may exist. The primary purpose of this study is to study the relationship among multiple roles, role overload, stress, self-efficacy and academic achievement. Considering this purpose and the previous research findings, the following hypotheses are proposed.

Hypothesis 1 establishes the basic model. As a person experiences more roles, the increase in demands will lead to poor performance (in this study, academic achievement). Performance is an important indicator of self-efficacy, and as it decreases it erodes self-efficacy. As self-efficacy declines academic achievement is expected to decline.

Hypothesis 1: As multiple roles increase role overload and stress are expected to increase. Role overload and stress are, in turn, expected to result in lower levels of self-efficacy, which then contribute to a decline in academic performance (see Figure 1).

A person's initial level of self-efficacy could moderate the effects of role overload and stress. People with high self-efficacy believe in their ability to complete a task. This knowledge will decrease the level of stress associated with knowing you have many roles to fulfill. This moderation will lessen the effects of role overload and stress on academic achievement.

Hypothesis 2: The level of self-efficacy will moderate the influence of multiple roles on role overload and stress thus influencing academic performance (see Figure 2).

Figure 1

Path Analysis Model of Hypothesis 1

Family

Work

School

Elderly Care

Multiple Roles

Role Overload

Stress

Self-Efficacy

Grade Point Average
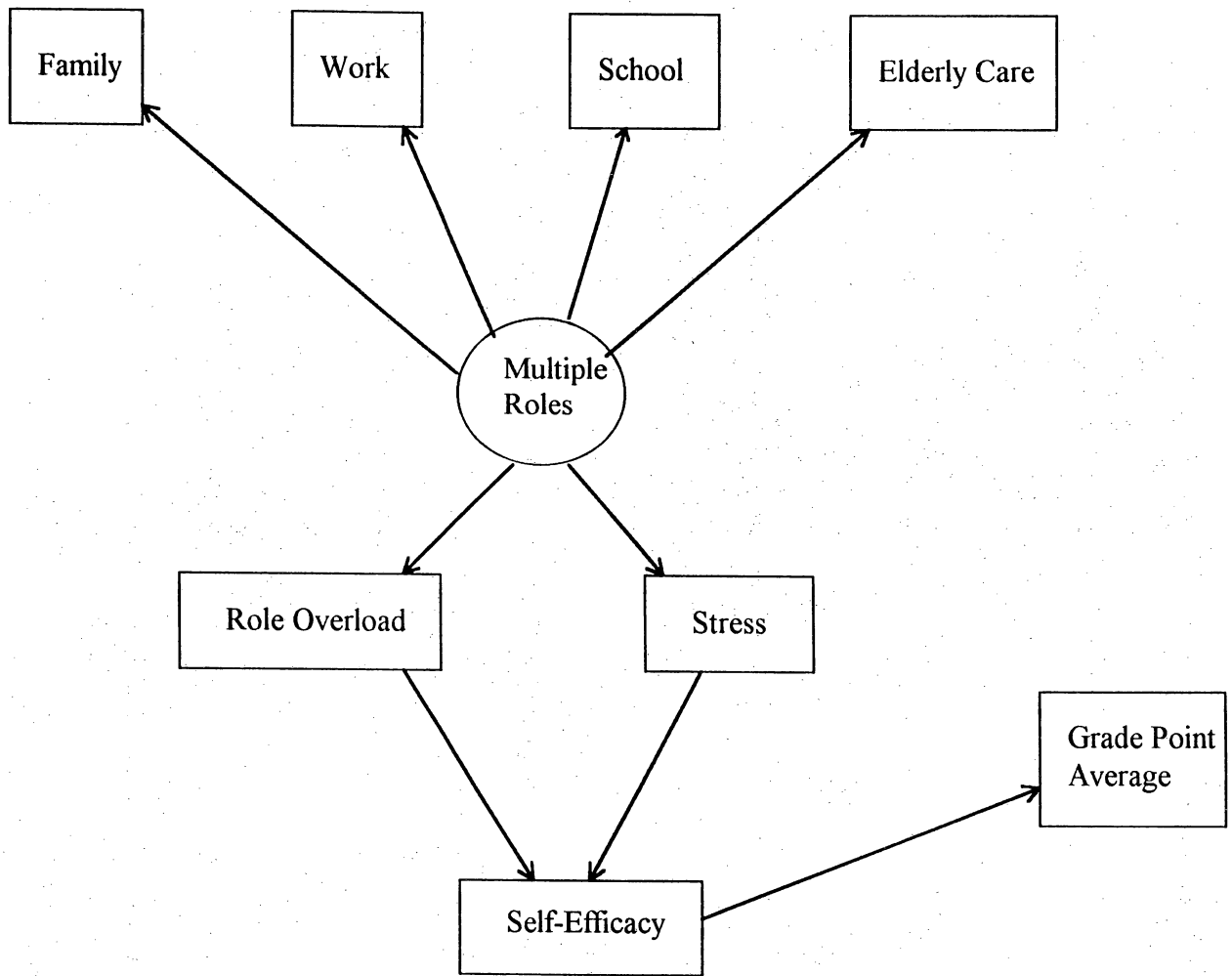
Figure 2

Path Analysis Model of Hypothesis 2

13
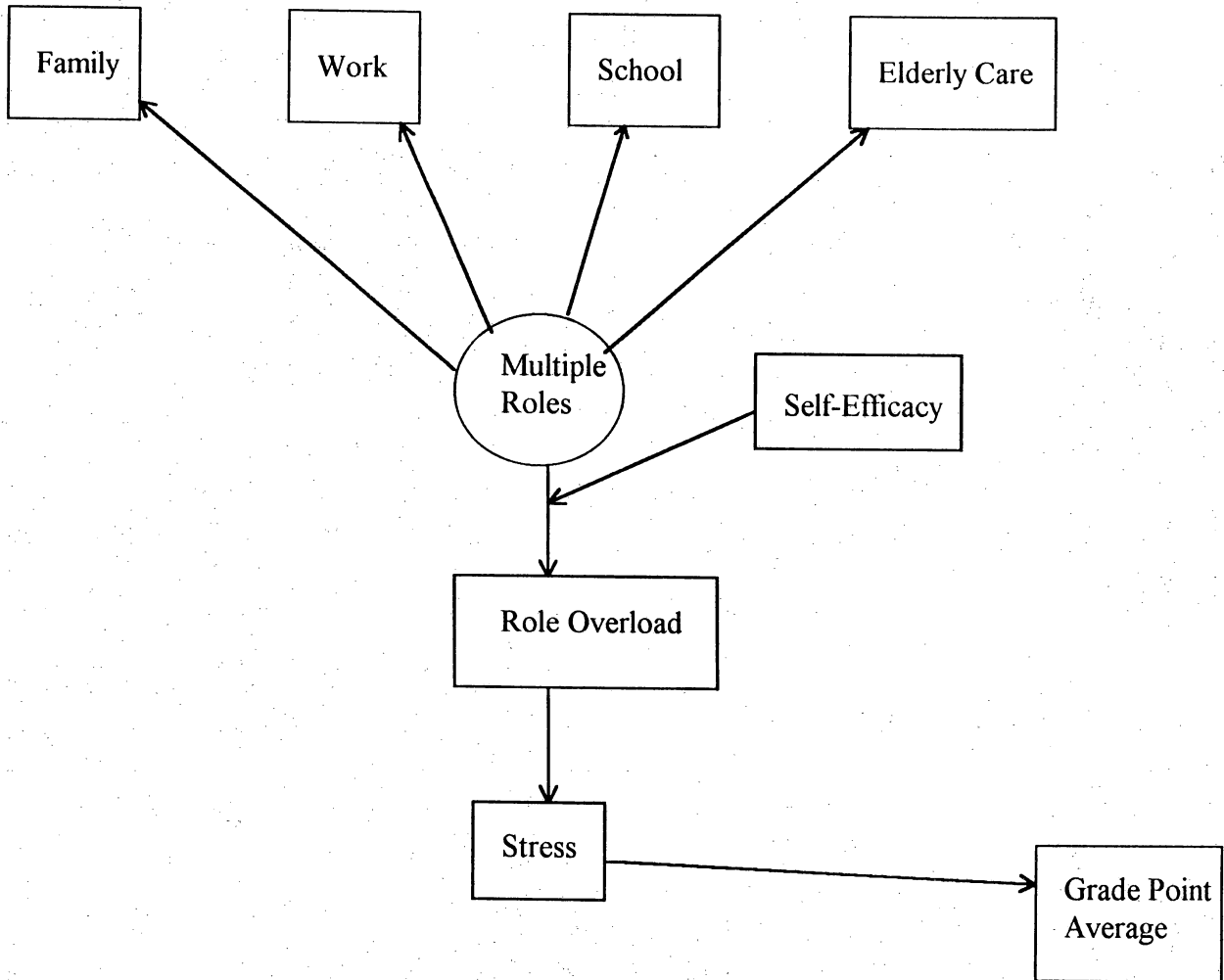
Another possibility is that a person with high self-efficacy is more likely to become involved in multiple roles because of their belief in their own ability. This tendency to become involved will contribute to stress and role overload. From the literature we would expect a decrease in academic performance.

Hypothesis 3: Increased self-efficacy contributes to the increase in multiple roles and role overload. As these increase so does stress, contributing to a decline in academic performance (see Figure 3).

Pilot Study

As was mentioned in the section Multiple Roles and Mental Role Overload, these two concepts are usually measured on dichotomous scales such as parenting, working, and/or marriage. Either you participate in the role or you do not. If you are a participant in a role, it is assumed to contribute to role overload. For a more complete measure, questions were generated to assess the amount of time and/or energy that was spent on each role. There were also questions intended to specifically assess Role Overload. These items were subjected to the following pilot assessment.

Method

Participants

Participants were 140 students from California State University, San Bernardino. There were 87 (64.4%) females and 48 (35.6%) males (five participants choose not to answer). They ranged in age from 18 to 56 years old, with a mean of 23 (sd = 7.19) years

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Figure 3

Path Analysis Model of Hypothesis 3

15
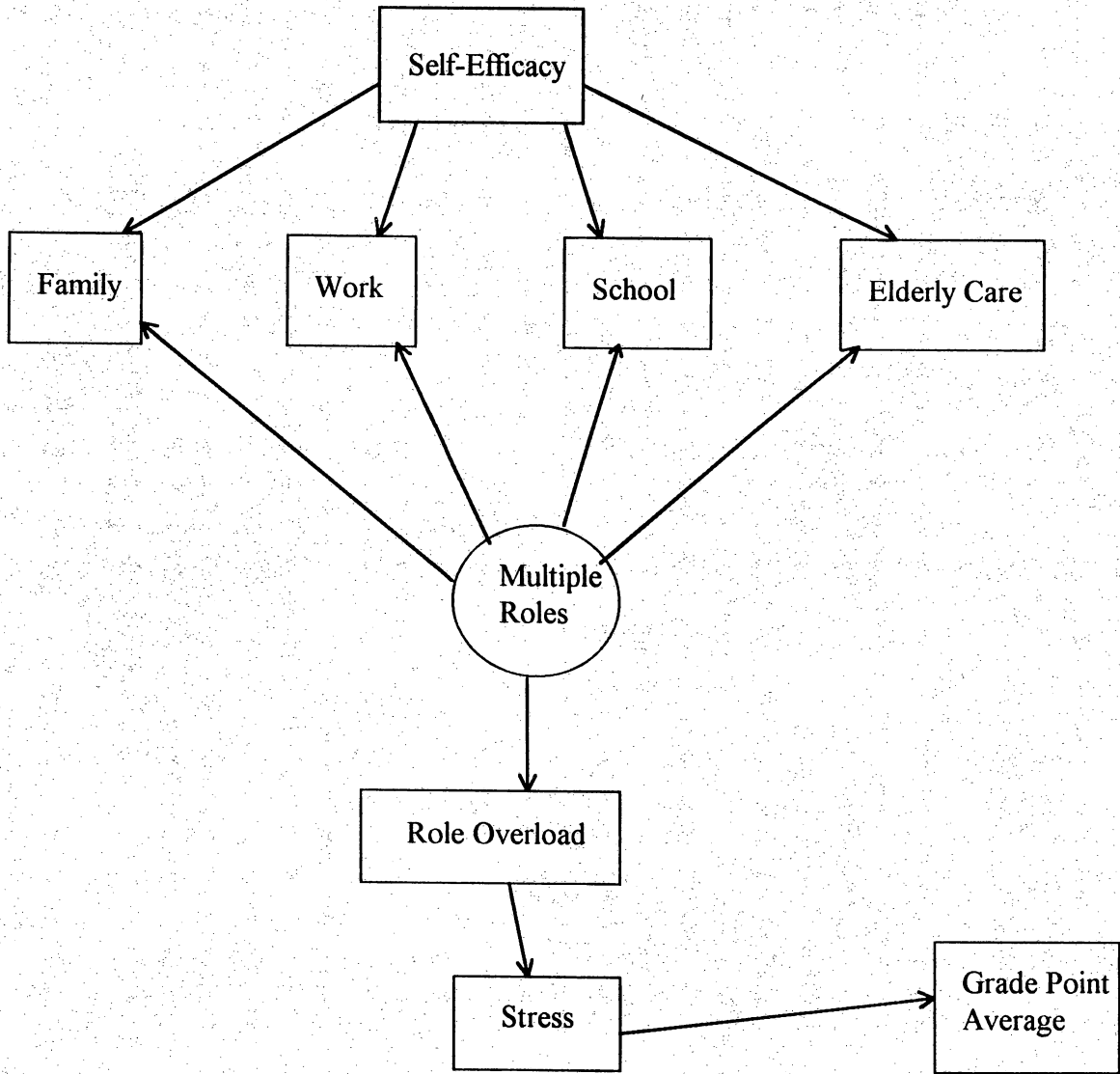
of age. The racial make-up of the participants was 33.6% Caucasian, 32.1% Hispanic, 15.7% African-American, 15.7% Asian/Pacific Islander, and 3.1% other or no response.

Materials and Procedures

Participants received a questionnaire during the 1997 Winter quarter. The questionnaire began with an informed consent notice (see Appendix A). After completing the informed consent, participants responded to two pages of questions measuring multiple roles and role overload. Multiple roles were assessed with researcher generated questions designed to measure roles such as student, caretaker, etc. Role overload was established by asking for subjective reports of the perceived involvement associated with the roles the participant was involved in (see Appendix B for a complete list of questions measuring multiple roles and role overload). Finally, the participant answered a brief set of demographic questions (see Appendix C).

To establish a relationship score, questions #7 and #8 from Appendix B were coded. If the person was married, they received a score of 3, if the person was in a long-term relationship and was living with that person, they received a score of 2, and of the person was not living with the person with whom they had a long-term relationship, they received a score of 1. This reclassifying was done to represent increasing degrees of commitment, although each score is independent and not representative of anyone else's score. Reverse scoring was done on items when necessary to have greater numbers reflect more of a contribution to the subscale. Due to the differing nature of responses

contributing to the subscales, alphas were conducted on the standardized scores of the items.

Results

A principle axis factor analysis with obliminal rotation was done to assess subscales within the Multiple Roles and Role Overload items. Five factors were forced based on a scree plot of the questions (see Table 1 for the questions in each subscale). These five factors, once rotated, accounted for 55.8% of the total variance. Individually, Factor one accounted for 12.6%, factor two for 11.68%, factor three for 11.43%. factor four for 9.39%, and factor five for 10.73% of the total variance. Based on the factor loading, the subscales for work, family, elderly care, school, and role overload were identified (see Table 2 for item descriptives and Table 3 for factor loadings). Question #9 (see Appendix B) was eliminated due to the unrelated, small loading in all factors (see Table 3 for loadings). Standardized alphas were established for the subscales and were within acceptable ranges for research (see Table 2). Based on the factor analysis, subscales were established. A Pearson's correlation was run on the subscales of family, work, school, elderly care, and role overload. As can be seen on Table 4, there are weak correlations among the subscales.

Table 1

The Items that are in Each Subscale

Work Scale:

* (w1) Do you work?

(w2) If you do work, on average, how many hours a week?

(w3) On average, how mentally difficult do you consider you job to be?

Family Scale:

(f1) In the average week, how many hours are you **solely** responsible for care?

(f2) How many children do you have in your care (include shared custody)?

(f3) The recoded relationship variable

(f4) How many hours a week, on average, do you spend preparing for any activities that

are not school related?

Elderly Care Scale:

(e1) In the average week, how many hours are you **solely** responsible for care?

*(e2) Are you the caretaker of an elderly individual?

School Scale:

(s1) How many hours a week, do you spend working on these activities?

(s2) How many school related activities (e.g., research groups, honor societies,

sororities/fraternities, etc.) are you currently involved in?

*(s3) How many hours a week, on average, do you spend studying?

Table 1 - continued

Role Overload Scale:

(r1) In the average week, how often do you feel that you have too much to do and not

enough time to do it?

(r2) How often do you think others in you class feel this time constraint?

(r3) How often, in the average week, are you able to complete **all** of your writing

assignments?

(r4) How often, in the average week, are you able to complete **all** of your reading

assignments?

(r5) How often do you think your classmates relax or participate in a hobby, in the

average week?

(r6) How many units are you taking this quarter?

*(r7) How many hours a week, on average, do you have time to relax, or participate in a

hobby that is not school related each week?

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* indicated items that were reverse scored.

Table 2

Item Descriptive Statistics and Scale Standardized Alphas

Items	n	Mean	SD	Skew	Kurtosis	Stand.Alpha
Work Scale:						.86
(w1)	140	dichotomous				
yes = 104						
no = 36						
(w2)	136	17.85	14.09	.30	-.69	
(w3)	136	2.55	2.12	.25	-1.28	
Family Scale:						.63
(f1)	140	11.75	37.53	3.45	10.62	
(f2)						
(f3)	140	ordinal				
married = 19						
long-term relationship and living together = 7						
long-term relationship, but not living together = 33						
neither = 81						
(f4)	140	3.09	3.40	1.61	3.73	

Table 2 - continued

Items	n	Mean	SD	Skew	Kurtosis	Stand. Alpha
Elderly Care Scale:						.86
(e1)	140	159.4	14.17	-10.5	115.45	
(e2)	140	dichotomous				
yes = 3						
no = 137						
School Scale:						.76
(s1)	140	3.15	5.702	2.12	3.74	
(s2)	140	.64	.923	1.40	1.25	
(s3)	140	11.21	9.21	1.38	1.46	
Role Overload Scale:						.48
(r1)	140	2.57	1.52	.95	.55	
(r2)	140	3.92	1.33	-.08	.94	
(r3)	140	5.41	1.55	-.67	-.69	
(r4)	140	3.89	1.74	.08	-.89	
(r5)	140	4.09	1.19	-.49	1.00	
(r6)	140	12.21	3.02	.18	2.16	
(r7)	140	7.34	7.75	2.47	6.44	

Table 3

Pattern Matrix for Item Factor Analysis with a Obliminal Rotation

	factor 1	factor 2	factor 3	factor 4	factor 5
w1	.92262	-.07101	-.11336	.02858	.04317
w2	.85417	.10383	-.21426	-.05966	-.12448
w3	.82699	-.02235	.04045	.02614	.10097
f1	.05406	.82964	.07380	-.11341	.04260
f2	-.00392	.80765	.02317	-.25143	-.07716
f3	.03609	.61547	.17691	.13477	-.19508
f4	-.18801	.31706	-.18564	.01044	-.02421
s1	-.12112	-.17249	.83835	-.07194	.04412
s2	-.04552	.05331	.80748	-.08961	.08162
s3	-.03395	.10070	.50997	.00393	.04637
r1	-.38436	.01246	-.06484	.60329	.010243
r2	-.04176	-.21771	-.05427	.54362	-.24630
r3	.21802	-.01219	.33081	.49614	-.04181
r4	-.01052	.17090	.34254	.46351	-.15334

Table 3 - continued

	factor 1	factor 2	factor 3	factor 4	factor 5
r5	.04094	-.04043	-.11119	.41499	.08561
r6	.06910	.39038	-.09554	.39702	.23455
r7	-.16003	-.10081	-.16216	.38387	.15201
e1	-.02563	.07414	.12530	.07191	.89519
e2	.03610	-.15289	.13404	.05102	.88788
Q #9	-.00657	-.06581	-.07390	-.26715	.28212

Table 4

Correlation Matrix of the Subscales in the Pilot Study

	Elder Care	Family	Overload	School	Work
Elder Care	1.000	-0.0170	0.037	0.073	-0.060
	p= 0.00	p= 0.05	p= 0.75	p= 0.39	p= 0.49
Family		1.000	-0.026	0.115	-0.027
		p= 0.00	p= 0.76	p= 0.18	p= 0.76
Overload			1.000	0.012	-0.142
			p= 0.00	p= 0.89	p= 0.10
School				1.000	-0.064
				p= 0.00	p= 0.46
Work					1.000
					p= 0.00

Discussion

Although the alphas for the family and role overload subscales are lower than desired, they are acceptable for subscales with such few questions. The short subscales are due to the nature of the roles. There are few questions that can be generated without being repetitive. The alpha for the role overload scale was, however, unacceptable.

The correlation matrix (see Table 3) does not indicate significant relationships among the majority of the subscales. It is possible that there is not be a relationship among these subscales. However, it is also possible that due to the low reliability of the role overload scale, correlation between it and other scales are not meaningful.

Based on the alphas and relatively simple structure, this questionnaire will be used in the study, but it is expected that several of the subscales will be revised in the principle study. The role overload scale will be included in the principle study, but unless it has a better reliability test, it will not be included in the analysis.

Principle Study

It was originally hypothesized that the subscales of work, school, family, and elderly care would directly contribute to role overload. Based on the pilot study indicating no relationship among the multiple role subscales, this section of the model had to be rethought. The following hypotheses are the revised versions of the hypotheses presented previously.

<u>Hypothesis 1</u>:

Time spent with a family, at work, caring for an elderly individual, and doing work for school contributes to role overload which increases stress. This stress contributes to a decline in self-efficacy which will decrease grade point average (see Figure 4).

<u>Hypothesis 2</u>:

The level of self-efficacy will moderate the influence of family, work, school, and the caring of an elderly individual on role overload. Increases in role overload increase stress thus decreasing academic performance (see Figure 5).

<u>Hypothesis 3</u>:

Increased self-efficacy contributes to the increase in work, school, family, and elderly care commitments, thus increasing role overload. This increase causes an increase in stress, contributing to a decline in academic performance (see Figure 6).

Method

<u>Participants</u>

For the principle study, 250 questionnaires were distributed. Two hundred and fifteen questionnaires were returned with 198 having all the information included that was necessary for the study. Participants were students from California State University San Bernardino. Of the participants, 157 (78.5%) were females and 43 (21.5%) were males (one participant chose not to answer). They ranged in age from 18 to 58 years old, with a mean of 26.9 (sd = 8.84) years of age. The racial make-up of the participants was 63.5% Caucasian, 19% Hispanic, 8% African-American, 7.5% Asian/Pacific Islander, and 2%
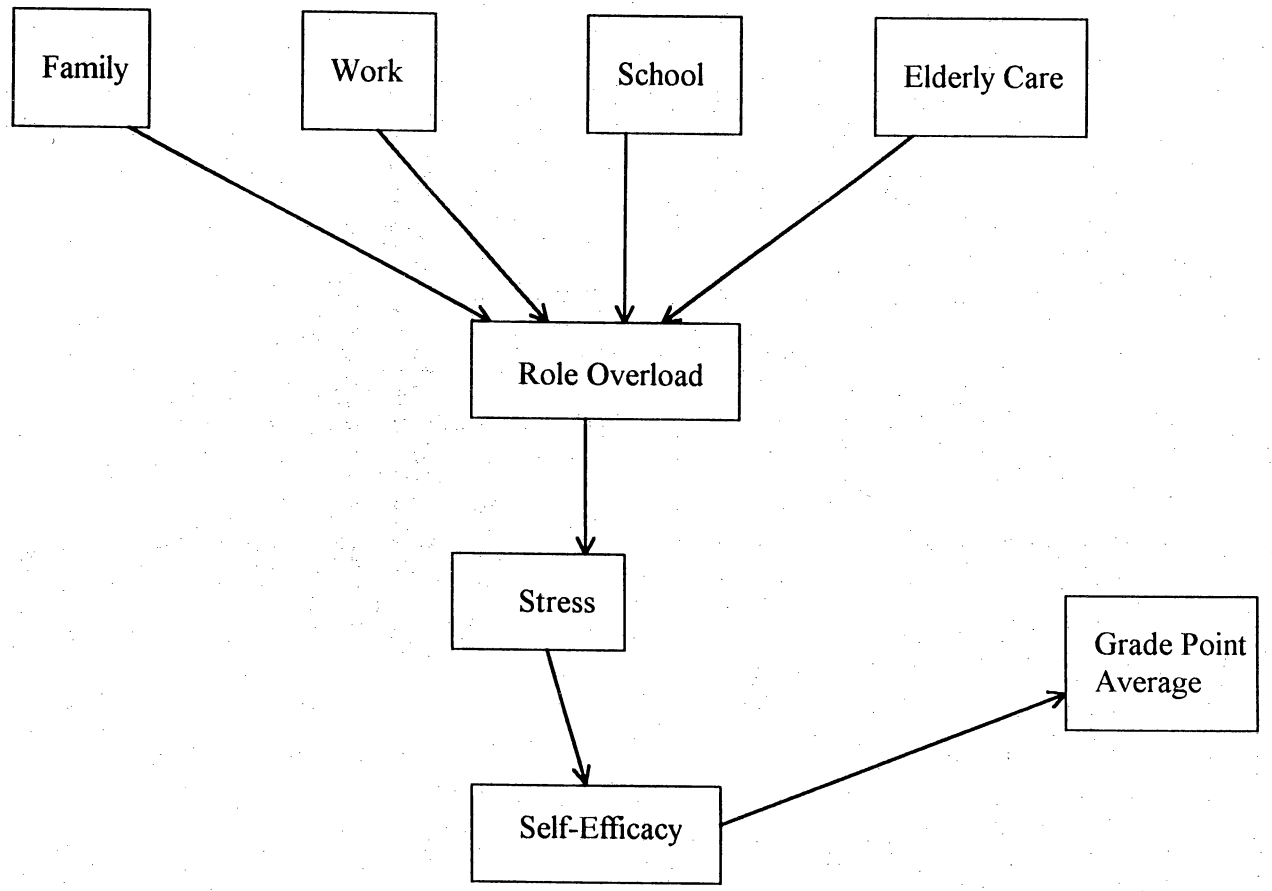
Figure 4

Figure 5

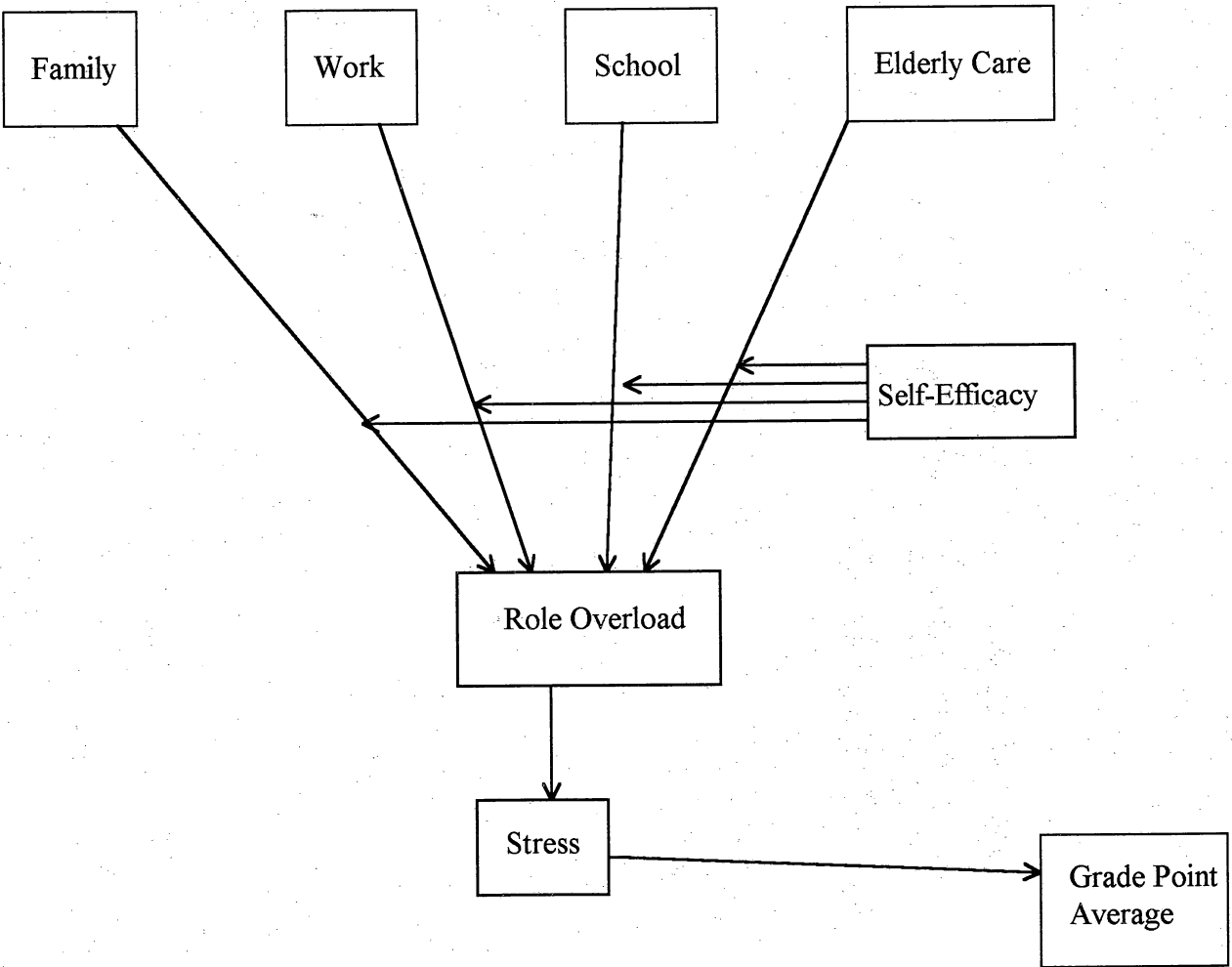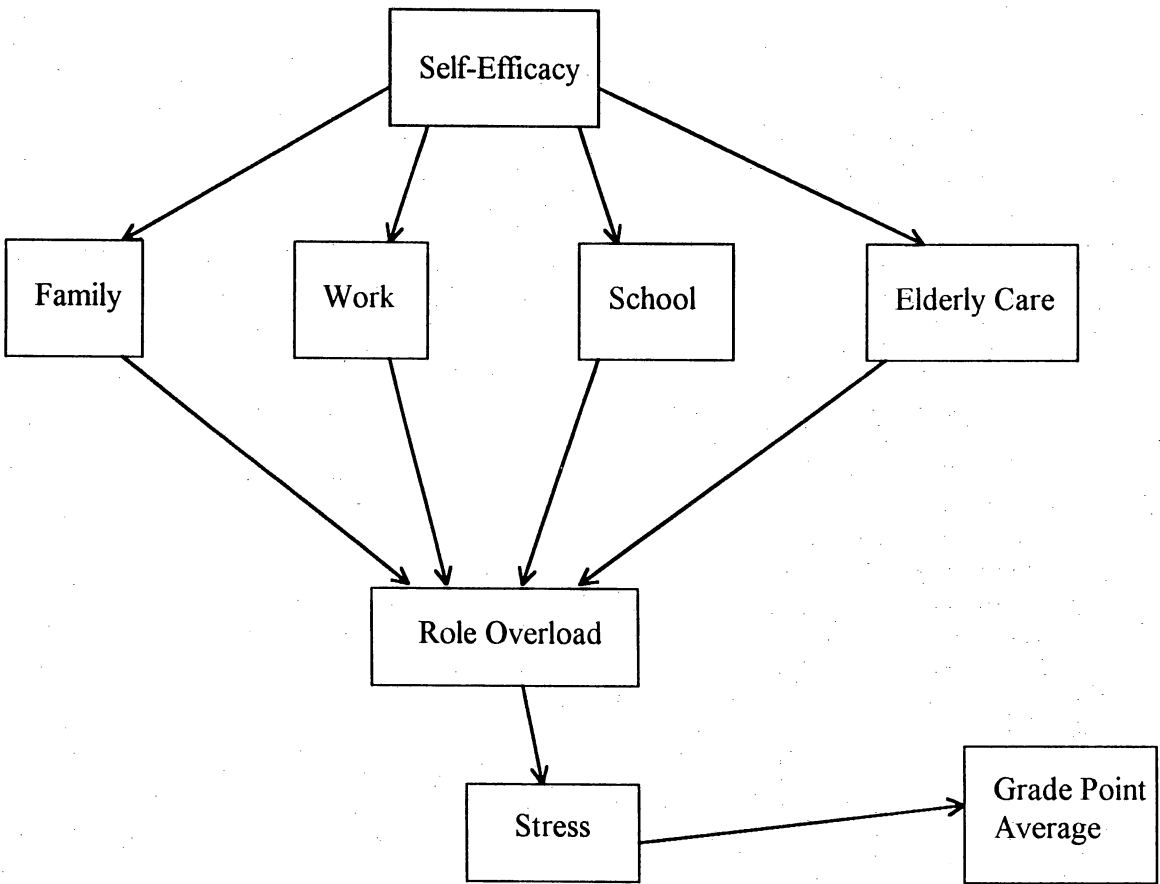Path Analysis Model of Revised Hypothesis 2

Figure 6

Path Analysis Model of Revised Hypothesis 3

other or no response. All participants were treated according to the guidelines suggested by the American Psychological Association for the use of human participants.

Materials

The materials consisted of a six page questionnaire. The questionnaire consisted of an informed consent form, a measure of multiple roles and role overload, a personal self-efficacy measure, and a perceived stress measure. Role overload and multiple roles were measured with the scales developed and described in the pilot study (see Appendix B for a complete list of questions). Validity and scale reliability were reported in the pilot study (see Table 1 - 4).

Self-efficacy was measured with a revised version of the Personal Efficacy Beliefs Scale (Riggs & Knight, 1994; Riggs, Warka, Babasa, Betancourt, & Hooker, 1994). Rather than using task-specific items, this scale enables the participant to cognitively refer to and define their performance requirements without listing specific tasks. Participants were instructed to, "Think about your ability to do the tasks required to succeed in your major at this college." The 10-item Personal Efficacy Beliefs Scale used a 6 point Lykert-type response scale. Item responses varied from 1 to 6 and were anchored as follows: 1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = somewhat agree, 5 = agree, 6 = strongly agree (see Appendix F for a complete list of questions). This measure has been shown to be statistically reliable (.85 to .88) and indicates validity with satisfaction and performance (.30 and .22 respectively) (Riggs et al., 1994).

Stress was measured with the Global Measure of Perceived Stress (Cohen, Kamarck, & Mermelstein, 1983). This scale was chosen because it was designed to measure stress from current circumstances, chronic circumstances, and possible sources of stress in the future. The scale consisted of 14 item, seven of which required reverse scoring (see Appendix F for complete list of items). The items were answered on a 5-point Lykert-type scale that was anchored at 1 = never, 2= almost never, 3 = sometimes, 4 = fairly often, and 5 = very often. All reliability and validity data were collected on college students. The scale is highly correlated with physical symptoms of stress (r = .52, p < .001). Reliability testing indicated an alpha = .84, and test-retest correlation was .85 (Cohen, Kamarck, & Mermelstein, 1983).

Performance was measured by academic achievement. This was established using the participants' Winter 1997 quarterly grade point average (the most current available at the time of testing). This measure was chosen for two reasons. First, it does not reflect past performance, good or poor, that would have been extraneously influenced. Second, the measures of self-efficacy, stress, and multiple roles are concerned with the present as is quarterly grade point average.

Procedures

All data, except quarterly grade point average, were collected by questionnaire during the Spring quarter 1997. The questionnaire began with a detailed informed consent notice which also acquired permission to access the participant's grades (see Appendix E). After completing the informed consent, participants responded to questions intended to

measure multiple roles and role overload, self-efficacy, and stress. At the time of return, students were given a debriefing statement and an extra-credit slip. Extra-credit was given at professors' discretion in psychology classes. No other incentive was given. Grade point average was collected from the University's records. Since the role overload and multiple role measures were developed for this study, reliability testing was done in the principle study as well. Standardized scales were generated for work, school, family, elderly care, and role overload based on the principle study data.

<div align="center">Results</div>

Reliability Testing and Descriptive Information:

The reliability testing on the multiple role and role overload items varied from the pilot study. As can be seen on Table 5, the Cronbach's alpha was not acceptable for the original subscales (e.g., .47). Due to this, the original subscales were adjusted for use in the principle study. Based on the item-total correlations, certain items were removed (see Table 6 for the final items included in each subscale). Based on the poor reliability measures and a failed attempt to restructure the scale, the role overload subscale was not included in any further analysis. Reliability for the Perceived Stress Scale and the Personal Self-Efficacy Scale were both acceptable ($\alpha = .89$ and $\alpha = .81$, respectively). Descriptive information about all the measurements used can be seen in Table 7. Based on the lack of variance (only three of the participants reported caring for an elderly individual), the elderly care subscale was excluded from the analysis. The covariance and correlation matrixes can be seen in Appendix I.

Table 5

Reliability Analysis for the Multiple Roles Subscales and the Alphas if Items are Deleted*

Scale	Scale Alpha	Item	Item-Total Corr.	Alpha if Item Deleted
Work Scale:	.8868			
		w1	.8209	.8018
		w2	.7747	.8430
		w3	.7426	.8709
Family Scale:	.5672			
		f1	.3980	.4561
		f2	.6032	.2675
		f3	.2460	.5769
		f4	.1949	.6153
Elderly Care Scale:	.7374			
School Scale:	.5904			
		s1	.6286	.1110
		s2	.6037	.1559
		s3	.0749	.9074

Table 5 - continued

Scale	Scale Alpha	Item	Item-Total Corr.	Alpha if Item Deleted
Role Overload:	.4700			
		r1	.3811	.3526
		r2	.2472	.4193
		r3	.2164	.4337
		r4	.3097	.3886
		r5	.1262	.4748
		r6	.0146	.5227
		r7	.2755	.4057

* Please see Table 1 for the questions that correspond to the items.

Table 6

Items Left In the Subscales for the Principle Study

Work Scale:

* (w1) Do you work?

(w2) If you do work, on average, how many hours a week?

(w3) On average, how mentally difficult do you consider you job to be?

Family Scale:

(f1) In the average week, how many hours are you **solely** responsible for care?

(f2) How many children do you have in your care (include shared custody)?

(f3) The recoded relationship variable

Elderly Care Scale:

(e1) In the average week, how many hours are you **solely** responsible for care?

*(e2) Are you the caretaker of an elderly individual?

School Scale:

(s1) How many hours a week, do you spend working on these activities?

(s2) How many school related activities (e.g., research groups, honor societies,

sororities/fraternities, etc.) are you currently involved in?

---

* indicated items that were reverse scored.

Table 7

Descriptive Statistics for All Variables *

Variable	n	Mean	SD	Skew	Kurtosis	Alpha
Work Scale	198	-.001	2.72	-0.90	-0.54	.8868
Family Scale	198	-0.01	2.25	1.07	0.35	.6153
School Scale	198	0.01	1.92	3.10	12.56	.9074
Elderly Care Scale	198	-0.02	1.75	5.64	35.26	.7374
Stress Scale	198	40.72	8.43	-0.19	-0.26	.8895
Self-Efficacy Scale	198	46.38	7.00	-0.19	-0.21	.8129
Grade Point Average	198	3.04	0.88	-1.04	0.67	n/a

* The Work, Family, School, Elderly Care, and Role Overload subscales are based on

adding the standardized score of variables in the subscale.

Hypothesis Testing:

Path analysis was conducted using the EQS statistical software (Bentler, 1992).

For each hypothesis, the two highest outliers were removed from the analysis. Chi-square,

the Bentler-Bonett normed fit index (NFI), the Bentler-Bonett non-normed fit index

(NNFI) and the comparative fit index (CFI) was computed to determine the overall fit of

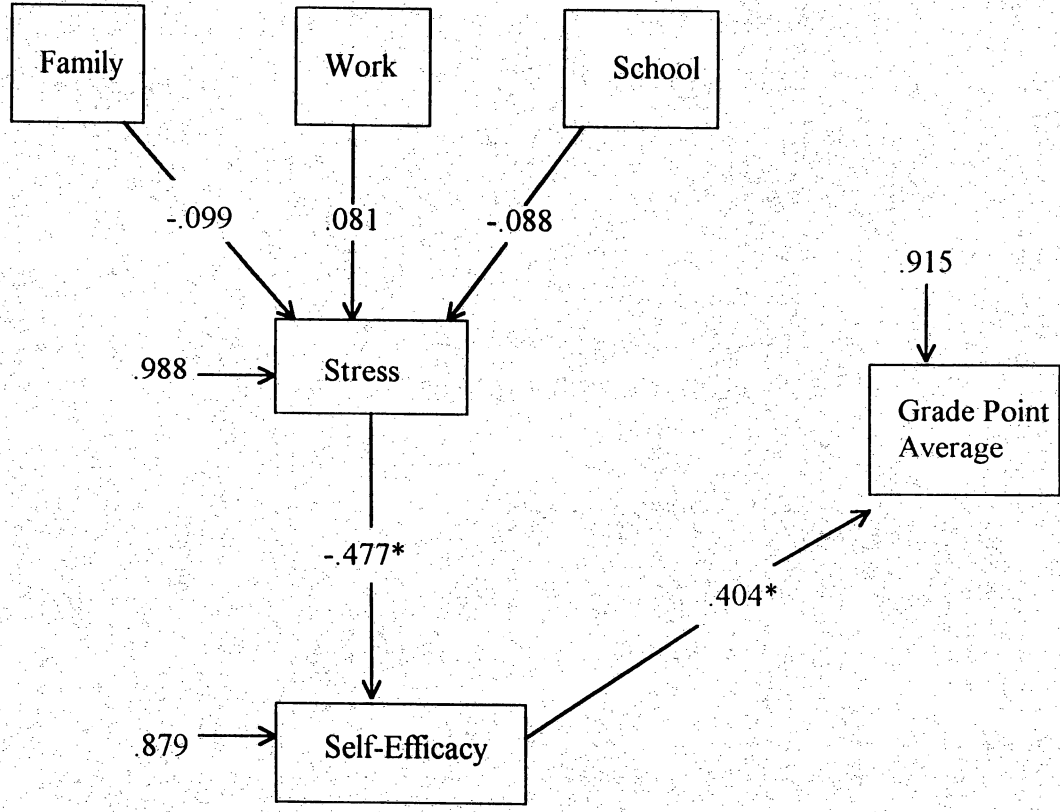the data with each of the models.

Hypothesis 1

The resulting path coefficients and error coefficients for Model 1 are shown in

Figure 7. The chi-square of 19.06 ($df = 7$, N = 196) was significant (p < .01), thus

indicating a poor fit. The measures of the goodness-of-fit also indicated a poor fit (NFI =

0.835, NNFI = 0.743, CFI = 0.880).

Hypothesis 2

Due to the lack of normality of the data, the method used was the robust maximum

likelihood estimation (Ullman, 1996). The resulting path coefficients and error

coefficients for Model 2 are shown in Figure 8. The chi-square of 86.28 ($df = 23$, N =

196) was significant (p < .001), thus indicating a poor fit. The measures of the goodness-

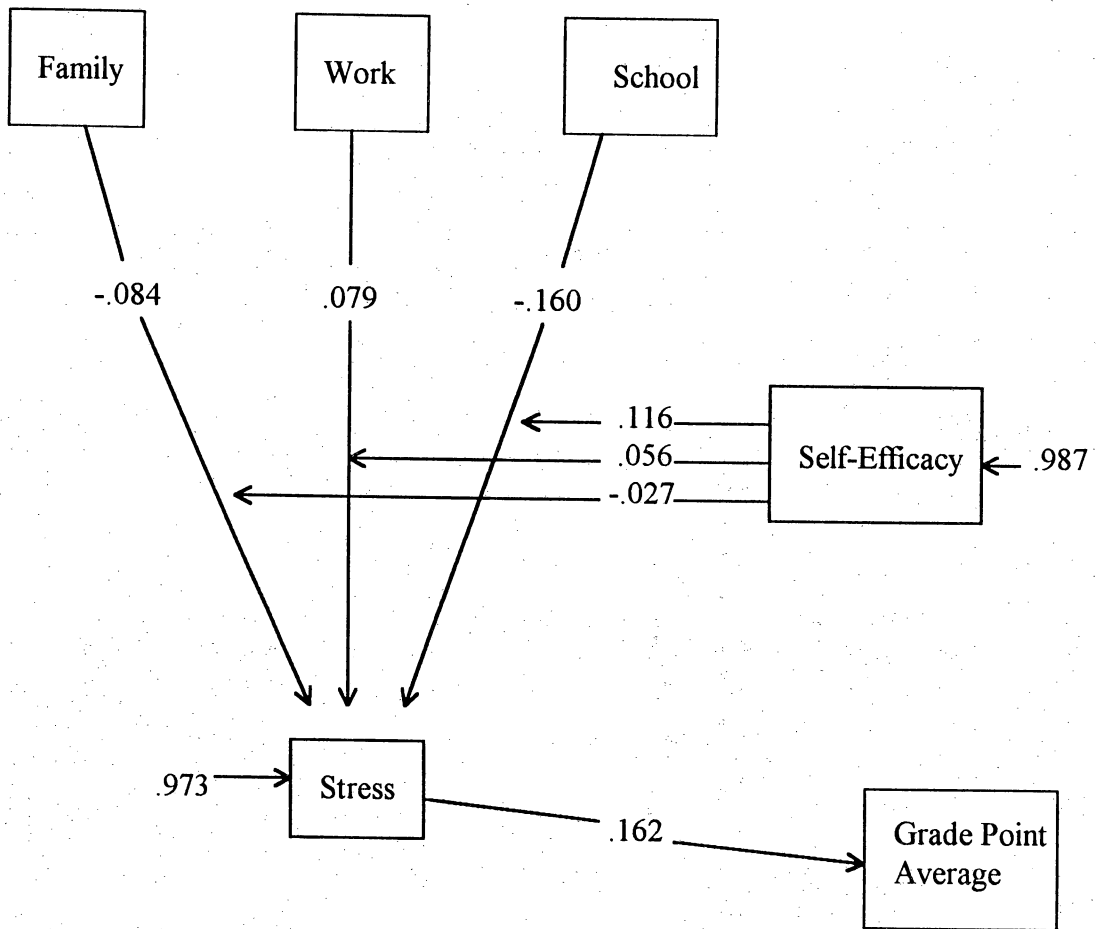of-fit also indicated a poor fit (NFI = 0.187, NNFI = -0.336, CFI = 0.147).

Figure 7

Results of the Path Analysis of Model 1

* Indicated paths that are p < .05

38

Figure 8

Results of the Path Analysis of Model 2

The resulting path coefficients and error coefficients for Model 3 are shown in Figure 9. The chi-square of 94.18 ($df = 8$, N = 196) was significant (p < .001), thus indicating a poor fit. The measures of the goodness-of-fit also indicated a poor fit (NFI = 0.185, NNFI = -0.606, CFI = 0.143).

Based on the Wald tests and the largest standardized residuals in the three hypothesized models, a new model was formulated to fit the data (see Figure 10). Due to the lack of normality of the data, the method used was the robust maximum likelihood estimation (Ullman, 1996). The chi-square analysis indicated 5.48 ($df = 4$, N = 197) was nonsignificant (p = 0.24) which indicates a good fit. Further analysis also indicated a good fit (NFI = 0.955, NNFI = 0.977, CFI = 0.991). The resulting coefficients and error coefficients for this model can be seen in Figure 11. There were weak indirect effects to grade point average from family (0.018), school (0.030), and stress (-0.017) (error = 0.303).

Discussion

The first point of discussion is the scale testing information. As can be seen in the results section, the subscales of work, family, and elderly care had good reliability information in the pilot, as well as, in the principle study. However, the elderly care scale had poor variability which may explain why it was not a significant path in any of the
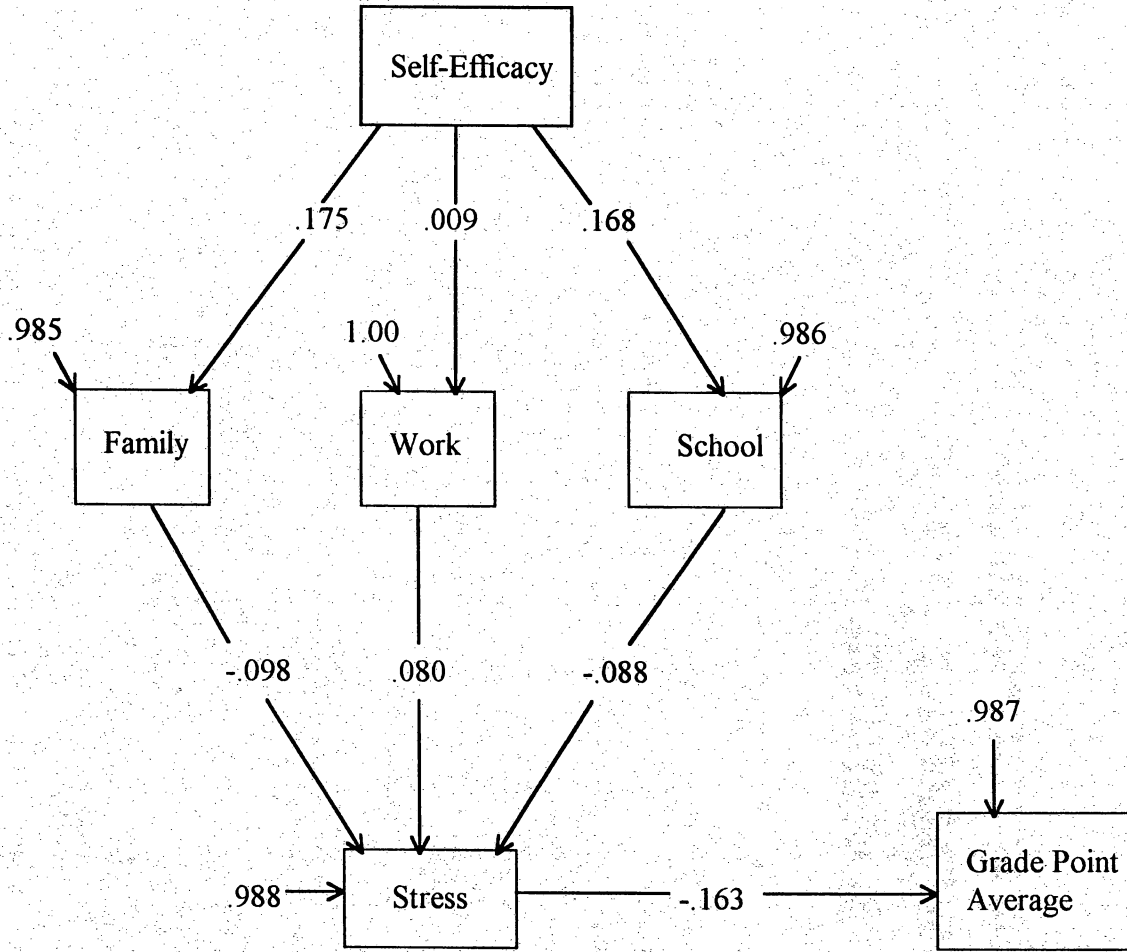
Figure 9

Results of the Path Analysis of Model 3

Figure 10
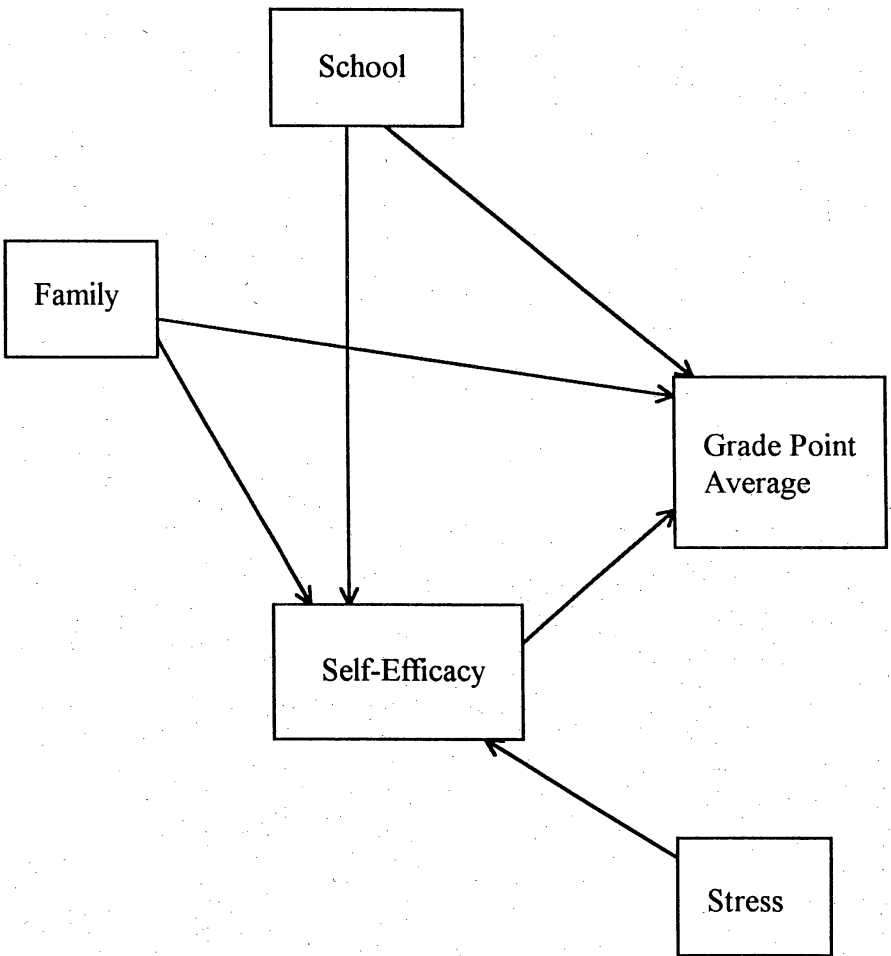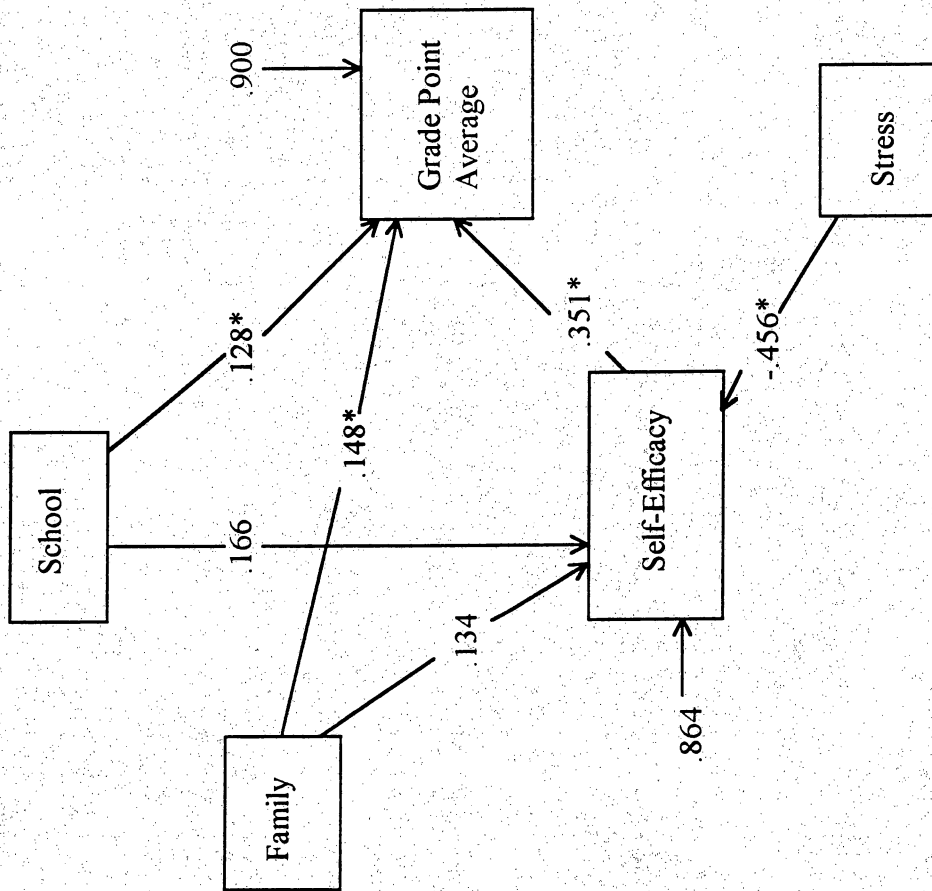
The Best Fit Path Analysis Model

Figure 11

Results of Best Fit Path Analysis Model

* Indicated paths that are p < .05

models. The other scale that was of concern during this phase of the testing was the personal self-efficacy scale (Riggs & Knight, 1994; Riggs, Warka, Babasa, Betancourt, & Hooker, 1994). The concern was about the changes in the questions and the preference in the literature to measure task specific self-efficacy instead of a general self-efficacy (Bandura, 1977; 1982; 1989a; 1989b). The difference with this measure of self-efficacy is it had task specific directions with general questions. In this study the measure was found to have good reliability measures and strong paths within the model.

As can be seen from the results section, the proposed revised hypotheses were not fully supported. Hypothesis 1 had the best fit of the three hypotheses proposed. The strongest paths indicate that there is a relationship between stress and self-efficacy and self-efficacy and grade point average. These paths have been supported in the literature. Fisher (1986, 1994) discussed the decreased performance that is often linked with increased stress. It has also been demonstrated that poor performance decreases self-efficacy (Bandura, 1982; 1989a; Sexton & Tuckman, 1991; etc.). Self-efficacy has been shown to predict academic performance in several studies (Lent, Brown, & Larkin, 1984, Phillips & Russell, 1994; etc.). The weak paths seen between the work, school, and family subscales and stress appear to be a measurement discrepancy. The literature provides support for the influence of multiple roles and role overload, but due to the lack of reliability in this measure these relationships were not testable.

However, certain paths within the models suggested strong relationships. Based on the results of these models, a hypothesized model for future research was proposed and

tested. This model supported several aspects of the literature, but also does not support relationships that have been discussed and predicted in past studies.

The first section in the model is the relationship school has with self-efficacy and grade point average. This supports the expansion theory of multiple roles (Campion & McClelland, 1993; Froberg, Gjerdingen, & Preston, 1986) as well as the theory of increasing self-efficacy (Bandura & Cervone, 1986). Adding roles can increase self-efficacy by adding knowledge and skills. In this study, the school subscale was assessed by asking questions about school activities and/or projects in which the student was involved. These activities were expected to provide the student with skills he or she could use to become more successful in other areas of academic achievement (in this study, it was quarterly grade point average). The relationship between school and self-efficacy is also supported theoretically. Bandura and Cervone (1986) suggest that success in an area increases a person's self-efficacy about his/her performance. It is expected that if a person remains in a project or school activity he/she must be successful on some level, thus increasing his/her self-efficacy.

The next section in the model is the influence of family on grade point average and self-efficacy. According to the multiple roles expansion theory (Campian & McClelland, 1993; Froberg, Gjerdingen, & Preston, 1986), by having a relationship and/or children, you are gaining enough positive influences from them that it increases your performance in school. This gain could be in the form of support offered by the family. Social support has been recently investigated as a buffer with mixed results (Bliese & Castro, 1997;

Sanchez, Viswesvaran, & Fisher, 1997; Sargent & Terry, 1997). However, it could also be that the participants feel a sense of responsibility toward their family to succeed in school and are applying themselves more diligently.

The final section of the model revolves around self-efficacy. Much of the literature suggests that as self-efficacy improves, so will performance (Bandura & Schunk, 1981, Brown & Inouye, 1978; Schunk, 1981). However, there has been research showing that if a person has high self-efficacy, he/she prepares less and his/her performance declines (Bandura, 1982). This model supported the first set of findings. As self-efficacy increased so did academic performance.

Stress was also found to have an influence on self-efficacy. The negative relationship suggests that as stress increases, self-efficacy decreases. As mentioned earlier this is based on the theories presented by Fisher and Bandura. Fisher (1986, 1994) stated that a decrease in performance is linked with an increase in stress. The changes in performance decrease self-efficacy (Bandura, 1982; Bandura, 1989a; Sexton & Tuckman, 1991; etc.).

Although the different sections of the model are supported in the literature, there was a large section of the original hypotheses that was not supported. Considering the literature, it was expected that the multiple roles of family, school, and work would be related and contribute to role overload (Goode, 1960; Froberg, Gjerdingen, & Preston, 1986). At no time, was there a relationship with any of the multiple role measures or

indications of a factor of role overload. However, without a reliable measure of role overload, there is no way to assess its relationship with the other paths in the model.

While none of the hypotheses were fully supported, the results are promising. It does appear that when a person is participating in multiple roles, his/her academic performance will be affected. There is support that these effects are influenced by self-efficacy and stress. However, based on some of the weaknesses in the model, there should be some modifications in the measures for future studies. First, the multiple roles and role overload subscales need more items. This can be done by asking more qualitative questions about each of the roles (e.g., do you enjoy being a parent?) and exploring other possible roles. Second, role overload should be reconceptualized and questions developed from there. The questions should also reflect the psychological influences and physical influences separately. Once a reliable measure of role overload is constructed, it can be used in the post-hoc model proposed as well as the initial hypotheses.

Appendix A

Informed Consent - Pilot

The study you are about to participate is a pilot study of the enclosed measure.

The study is being conducted by Elizabeth Barbo as a part of the requirements to complete

the Master's of Arts thesis. The purpose of this study is to assess the validity and

reliability of this measure.

You will be asked to answer a 2 page questionnaire. It will take approximately 10

minutes to complete. This study has been approved by the Psychology Department

Human Subjects Review Board of California State University San Bernardino. The

University requires that you give your consent before participating in a research study.

The data will only be reported in group form to further maintain your

confidentiality. You may choose to end your participation at any time or may choose not

to participate without penalty. This study will be completed by April 1997. Results can

be obtained at that time by contacting Dr. Matt Riggs at (909) 880-5590. Extra credit may

be received at your instructors' discretion.

By placing a mark in the space provided below, I acknowledge that I have been

informed or, and understand the nature and purpose of this study, and I freely consent to

participate. By mark I further acknowledge that I am at least 18 years of age.

Give your consent to participate by making a check or 'X' mark here: _____

Today's date: _____

Appendix B

Measures of Multiple Roles and Role Overload

*1. Do you work?　　　　　Yes　　　　No

　　　If you do work, on average, how many hours a week?

2. On average, how mentally difficult do you consider you job to be?

　　　1　　2　　3　　4　　5　　6　　7
　　　Not at　　　　　　　　　　　Very difficult
　　　all difficult

3. How many units are you taking this quarter?

4. How many school related activities (e.g., research groups, honor societies,

　　sororities/fraternities, etc.) are you currently involved in?

　　　How many hours a week, on average, do you spend working on these activities?

*5. How many hours a week, on average, do you spend studying?

6. How often, in the average week, are you able to complete **all** of your reading

　　assignments?

　　　1　　2　　3　　4　　5　　6　　7
　　　Always　　　　　　　　　　　Never

How often, in the average week, are you able to complete **all** of your writing assignments?

　　　1　　2　　3　　4　　5　　6　　7
　　　Always　　　　　　　　　　Never

7. Are you currently married?　　　Yes　　　　No

8. If you are **not** married, are you in a serious relationship of more then 1 year?　Yes　No

If yes, do you live together?   Yes   No

*9. Have you begun a new relationship in the last year?   yes   no

10. How many children do you have in your care (include shared custody)?

   In the average week, how many hours are you **solely** responsible for their care?

*11. Are you the caretaker of an elderly individual? Yes   No

   In the average week, how many hours are you **solely** responsible for their care?

12. How many hours a week, on average, do you spend preparing for any activities that
   are not school related (e.g., church groups, social events, etc.)?

13. In the average week, how often do you feel that you have too much to do and not
   enough time to do it?

1	2	3	4	5	6	7
Never						Always

14. How often do you think others in you class feel this time constraint?

1	2	3	4	5	6	7
They feel this more						I feel this much more

*15. How many hours a week, on average, do you have time to relax, or participate in a
   hobby that is not school related each week?

*16. How often do you think your classmates relax or participate in a hobby, in a week?

1	2	3	4	5	6	7
Always						Never

---

* indicates items that were reverse scored

Appendix C

Demographic Questions

Please answer the following questions for reporting purposes:

1. Age _____

2. Gender(circle one)   Male   Female

3. Race/Ethnicity _____

4. Year in school (circle one) Freshman   Sophomore   Junior   Senior   Grad

Student   Other

5. Please indicate your major _____

Appendix D

Debriefing Statement - Pilot

Thank you for your participation in this study. This study is designed to test the reliability and validity of a multiple role an role overload measure. We would like to assure you again of the anonymity of your participation in this study.

If you have any questions about this study, or would like to discuss your experience in this study, please contact Dr. Riggs at (909) 880-5590. The results of this study may also be obtained at the above telephone number April 1997. We greatly appreciate your time and honesty.

Elizabeth J. Barbo - researcher

Appendix E

Informed Consent - Principle Study

The purpose of this study is to assess possible areas that influence academic performance in college students. This study is being conducted by Elizabeth Barbo under the supervision of Dr. Matt Riggs, professor of Psychology. This study has been approved by the Institutional Review Board at California State University San Bernardino.

You will be asked to answer a 6 page questionnaire. It will take approximately 20 - 30 minutes to complete. You will also be asked to provide the information necessary to access your academic records. To maintain anonymity and confidentiality, the records will only be seen by Dr. Matt Riggs, department of psychology. Once grade information is gathered it will be attached to the questionnaire that you completed. Dr. Riggs will remove the informed consent page and store it separately from the questionnaire before the responses are viewed. Once this is completed, the information you provide will be entered into the computer. The data will only be reported in group form to further maintain your confidentiality.

You may choose to end your participation at any time or may choose not to participate without penalty. This study will be completed by June 1997. Results can be obtained at that time by contacting Dr. Matt Riggs at (909) 880-5590. Dr. Riggs may also be contacted to answer any questions about your participation at the above number.

By signing this statement you understand:

1. the purpose of the study and what participation will entail.

2. that you have the right to end your participation at any time.

3. you are giving permission for your grades to be accessed.

4. that the researchers will due everything possible to maintain your anonymity

and confidentiality.

5. you are at least 18 years of age or older.

Participant's Signature   **Date**

Print your name   **Social Security Number**

Appendix F

Personal Efficacy Beliefs Scale

Think about your ability to do the tasks required to succeed in your major at this college. When answering these questions, answer in reference to our own personal skills and abilities to perform college requirements.

1. I have confidence in my ability to perform the requirements of college.

* 2. There are some tasks required by college that I cannot do well.

* 3. When my performance is poor, it is due to my lack of ability.

* 4. I doubt my ability to succeed in college.

5. I have the skills needed to be successful in college.

* 6. Most people in my classes can do the work better than I can.

7. I am extremely successful in college.

* 8. My options in college are limited because of my lack of skills

9. I am proud of my college skills and abilities.

* 10. I feel threatened when professors evaluate my work.

---

* indicates questions that will be reverse score. All questions are responded to on a 6 point Lykert-type scale.

Appendix G

Perceived Stress Scale

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate *how often* you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer each question fairly quickly. That is, don't try to count up the number of times you felt a particular way, but rather indicate the alternative that seems like a reasonable estimate.

1. In the last month, how often have you been upset because of something that happened unexpectedly?

2. In the last month, how often have you felt that you were unable to control the important things in your life?

3. In the last month, how often have you felt nervous or "stressed"?

* 4. In the last month, how often have you dealt successfully with irritating life hassles?

* 5. In the last month, how often have you felt that you were effectively coping with important changes that were occurring in your life?

* 6. In the last month, how often have you felt confident about your ability to handle your

* 7. In the last month, how often have you felt that things were going your way?

8. In the last month, how often have you found that you could not cope with all the things that you had to do?

* 9. In the last month, how often have you been able to control irritations in your life?

* 10. In the last month, how often have you felt that you were on top of things?

11. In the last month, how often have you been angered because of things that happened that were outside of your control?

12. In the last month, how often have you found yourself thinking about things that you have to accomplish?

* 13. In the last month, how often have you been able to control the way you spend your time?

14. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

---

* indicates questions that will be reverse score. All questions are responded to on a 5 point Lykert-type scale.

Appendix H

Debriefing Statement - Principle Study

Thank you for your participation in this study. This study is designed to assess certain influences on academic performance. Specifically, we are investigating the influence of self-efficacy, having multiple roles, the role overload caused by multiple roles, and how they effect academic performance in college. We would like to assure you again of the anonymity of your participation in this study.

If you have any questions about this study, or would like to discuss your experience in this study, please contact Dr. Riggs at (909) 880-5590. The results of this study may also be obtained at the above telephone number after June 1997. We greatly appreciate your time and honesty.

Elizabeth J. Barbo - researcher

Covariance and Correlation Matrix Used for Analysis*

	Stress	SE	Elderly	Work	Family	School	GPA
Stress	70.302	*-.4796*	*-.0658*	*.0806*	*-.0990*	*-.0914*	*.0347*
Self-efficacy	-28.135	48.947	*.0079*	*.0094*	*.1621*	*.2007*	*.4045*
Elderly	-0.967	0.097	3.072	*.0935*	*-.0312*	*-.0682*	*.0063*
Work	1.841	0.179	0.446	7.404	*-.1295*	*.1198*	*.0347*
Family	-1.866	2.550	-0.123	-0.792	5.061	*-.0908*	*.1954*
School	-1.473	2.698	-0.230	0.626	-0.392	3.689	*.1819*
GPA	-1.214	2.499	0.010	0.084	0.388	0.308	0.779

* Lower half of matrix is covariance matrix, higher half (italicized) is correlation matrix

(n = 198).

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