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Abstract

Twenty-four graduate associate and/or full professors from four disparate academic environments were interviewed on the salient attributes they emphasize and reinforce to their graduate students in socializing them to the professional norms of their respective academic discipline. Qualitative research methodology was utilized to assess and understand the socialization mechanisms and processes of graduate students within disparate academic environments. The results of the study have produced a new theoretical framework for understanding the differential patterns of student learning and development as a result of student's collegiate experience.

Keywords

Academic Environments, Graduate Education, Faculty, Students, Professional Socialization, Socialization

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Disparate Academic Environments: An Emergent Framework of Socialization

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Twenty-four graduate associate and/or full professors from four disparate academic environments were interviewed on the salient attributes they emphasize and reinforce to their graduate students in socializing them to the professional norms of their respective academic discipline. Qualitative research methodology was utilized to assess and understand the socialization mechanisms and processes of graduate students within disparate academic environments. The results of the study have produced a new theoretical framework for understanding the differential patterns of student learning and development as a result of students' collegiate experience. Key words: Academic Environments, Graduate Education, Faculty, Students, Professional Socialization, and Socialization

Research on the impact of college on students has primarily focused on the ways in which colleges influence factors such as attitudes, values, political beliefs, educational and occupational aspirations, and personality orientations, etc. (Pascarella, 1985). Various theoretical models have also been developed in efforts to understand student behavior, integration, and involvement as a means for explaining the “partnership” between the influence of institutional factors and student-related factors, and their dual effect on the differential patterns of student learning (Astin, 1984, 1985; Bean, 1985; Cabrera, Nora, & Castaneda, 1993; Pace, 1980, 1984; Pascarella, 1985; Tinto, 1975, 1987, 1993).

All of these models, however, are silent as to the influence and effect of academic departments in explaining students' change and stability during their college experience (Smart, Feldman & Ethington, 2000). Even Pascarella (1985), in his review of the influences on learning and cognitive development, noted that there was substantial evidence indicating that exposure to higher education had a positive influence on knowledge acquisition, cognitive development, and thinking skills. However, despite his inclusion of institutional environments, sub-environments, and the interactions with agents of socialization in his general causal model, Pascarella stops short in giving credence to academic departments as being the central “home” in which these dynamics take place, nor does he explain *how* these dynamics occur. How colleges, and specifically academic departments, actually affect student learning and cognitive development continues to be virtually absent from higher education research despite its importance and essentiality as a primary objective in fulfilling the missions of higher education institutions as noted by Baldwin and Thelin (1990), Feldman and Newcomb (1969), and Pascarella (1985).

In order to understand the effects of college on student learning and cognitive development, and the differential patterns of student learning that emerge from the college experience, the influence of academic departments must be examined. Due to the phenomenal growth rate of higher education institutions in the United States, academic departments have become the environments for which students learn the attitudes, values, and interests salient to their academic major (Smart, Feldman, & Ethington, 2000). The potential influence of academic departments on patterns of change and stability of college students is assumed to be manifested in large part through student interactions with departmental faculty, for, as Feldman and Newcomb (1969) noted, academic departments “are the basic units in which faculty members organize their administrative, teaching, and research efforts” (p. 152). It is through these interactions with departmental faculty members that students are reinforced and rewarded for their display of those salient attributes respective to the academic discipline, and thus, may explain the differential patterns of student learning and growth development (Parsons & Platt, 1973; Vreeland & Bidwell, 1966).

In addition, the emphasis of the aforementioned research in trying to gain an understanding of the effects of colleges on students has primarily focused on outcomes (what *has* happened), as opposed to the process of *how* these outcomes have occurred (Pascarella, 1985). The present study, however, focuses on the ways in which faculty reinforce and reward students for their display of the salient attributes respective to their discipline through an examination of the socialization processes between faculty members and their students in their respective academic environments.

Theoretical Framework and Related Research

Holland’s (1966, 1973, 1985, 1997) theory of vocational behavior was employed for identifying and assessing the respective underlying salient traits and assumptions of the academic environments in which faculty are hypothesized to require, reinforce, and reward students for their acquisition of such attributes. Holland’s theory was selected for this study because of its proven usefulness in explaining and understanding disciplinary differences in the professional attitudes and behaviors of faculty members and longitudinal patterns of change and stability in the abilities and interests of college students (see, for example, Assouline & Meier, 1987; Holland, 1985, 1997; Spokane, 1985, 1996; Tranberg, Slane & Ekeberg, 1993; Walsh & Holland, 1992).

Holland’s theory has three essential components: people, environments, and the congruence or fit between people and environments. The theory assumes that most people can be classified as one of six personality types (Realistic, Investigative, Artistic, Social, Enterprising, Conventional), based on their distinctive patterns of abilities, interests, and values, and that there are six analogous model environments that reflect the prevailing physical and social settings in society, with each environment hypothesized to attract, to be dominated by, and to reinforce and reward the abilities, interests, and values of its associated personality type. For example, Investigative academic environments (departments) tend to attract and to be dominated by Investigative personality types and to reinforce and reward the characteristic abilities, interests, and values of Investigative people (see Table 1). Holland’s theory further assumes that each personality type is most likely to flourish in the environment having the same label because that environment

provides opportunities, activities, tasks, and roles congruent with the competencies, interests, and self-perceptions of its parallel personality type. Specifically, the assumption is that congruence of person and environment is related to higher levels of educational stability, satisfaction, and achievement.

Table 1. Salient Attributes of the Six Personality Types and their Six Academic Environments from Holland's Theory

REALISTIC people and academic environments are associated with practical *activities* and the use of machines, tools, and materials. These behavioral tendencies lead, in turn, to the acquisition of mechanical and technical *competencies* and to a deficit in human relations skills. Students in Realistic academic environments are encouraged to *perceive themselves* as having practical, productive, and concrete values. Realistic environments *reward* students for the display of conforming behavior and practical accomplishment. Representative *disciplines* include mechanical engineering, engineering technology, and electrical engineering.

INVESTIGATIVE people and academic environments are associated with analytical or intellectual *activities* aimed at the creation of knowledge. These behavioral tendencies lead, in turn, to the acquisition of analytical, scientific, and mathematical *competencies* and to a deficit in persuasive and leadership abilities. Students in Investigative academic environments are encouraged to *perceive themselves* as being cautious, critical, complex, curious, precise, rational, and scholarly. Investigative environments *reward* students for the display of skepticism and persistence in problem-solving, documentation of new knowledge, and understanding solutions of common problems. Representative *disciplines* include anthropology, biology, economics, mathematics, chemistry, sociology, physics, and educational psychology and research.

ARTISTIC people and academic environments are associated with ambiguous, free, and unsystemized *activities* that involve emotionally expressive interactions with others. These behavioral tendencies lead, in turn, to the acquisition of innovative and creative *competencies*—language, art, music, drama, writing—and to a deficit in clerical and business system skills. Students in Artistic academic environments are encouraged to *perceive themselves* as having unconventional ideas or manners and possessing aesthetic values. Artistic environments *reward* students for the display of imagination in literary, artistic, or musical accomplishments. Representative *disciplines* include art, music, English, theater and dance, and foreign languages.

SOCIAL people and academic environments are associated with *activities* that involve the mentoring, treating, healing, or teaching of others. These behavioral tendencies lead, in turn, to the acquisition of interpersonal *competencies* and to a deficit in manual and technical skills. Students in Social academic environments are encouraged to *perceive themselves* as being cooperative, empathetic, generous, helpful, tactful, understanding, and having a concern for the welfare of others. Social environments *reward* students for the display of empathy, humanitarianism, sociability, and friendliness. Representative *disciplines* include psychology, criminology, political science, philosophy, history, consumer science, and educational counseling.

ENTERPRISING people and academic environments are associated with *activities* that involve the manipulation of others to attain organizational goals or economic gain. These behavioral tendencies lead, in turn, to the acquisition of leadership, interpersonal, speaking, and persuasive *competencies* and to a deficit in scientific abilities. Students in Enterprising academic environments are encouraged to *perceive themselves* as being aggressive, ambitious, domineering, energetic, extroverted, optimistic, and self-confident. Enterprising environments *reward* students for the display of initiative in the pursuit of financial or material accomplishments, dominance, and self-confidence. Representative *disciplines* include communications, law, journalism, marketing, management, and finance, insurance, and real estate.

CONVENTIONAL people and academic environments are associated with *activities* that involve the explicit, ordered, systematic manipulation of data to meet predictable organizational demands or specific standards. These behavioral tendencies lead, in turn, to the acquisition of clerical, computational, and business system *competencies* and to a deficit in artistic abilities. Students in Conventional academic environments are encouraged to *perceive themselves* as having a conventional outlook and concern for orderliness and routines. Conventional environments *reward* students for the display of dependability, conformity, and organizational skills. Representative *disciplines* include accounting.

Source: Holland (1966, 1973, 1985, 1997).

A small body of empirical evidence exists about the academic environments and for the validity of the assumption that they require, reinforce, and reward the prevalent characteristics of the analogous personality type. As Holland (1997) noted, “the environmental models are only occasionally studied” (p. 160); and Walsh and Holland (1992) concluded that the theory emphasizes “person variables” and is “lean on the concept of reinforcement” by the respective environments (p. 63). Although not extensive, research examining the instructional practices, educational orientations, organizational goals, and teaching goals of faculty members has shown results consistent with the salient attitudes, interests, and competencies that the respective Holland-classified environments are hypothesized to reinforce and reward (Morstain & Smart, 1976; Peters, 1974; Smart, 1982; Smart & McLaughlin, 1974; Smart & Thompson, 2001).

In addition, there has also been research supporting the *socialization assumption* of Holland's theory. This socialization process occurs through environmental efforts to: (1) stimulate individuals to perform the preferred activities of the environment; (2) foster their respective competencies; (3) encourage them to see themselves in ways consistent with the preferred values of the environment; and (4) reward them for the display of the preferred values of the environment.

Studies by Walsh and associates (1969, 1970, 1972), Huang and Healy (1997), Smart (1985, 1997), Smart and Feldman (1998), among others, have obtained similar results generally supporting the assumption of Holland's theory that academic environments emphasize differential patterns of abilities, interests, and values consistent with the salient attributes of their academic environment (academic major). These studies, based upon students' perceived patterns of growth, changes in students' intellectual, artistic, and leadership self-esteem, longitudinal patterns of change in students' self-reported career, leadership, cultural, educational, and social growth, and the significant relationships between six work values of college students and their academic majors as classified by Holland's theory provide evidence that suggests a clear and consistent pattern of research supporting the socialization assumption of academic environments.

Recent research by Thompson and Smart (1999) provides further evidence of the socialization assumption of Holland's theory. These researchers examined the relative emphasis faculty members in Investigative, Artistic, Social, and Enterprising academic environments placed on the development of alternative student competencies in their classes at a large doctoral-granting institution. Their findings fully support the premise of Holland's (1966, 1973, 1985, 1997) theory that faculty in the four academic environments reinforce and reward students for the development of different patterns of competencies in their classes respective to each academic environment.

Weidman, Twale, and Stein's (1998, 2001) professional socialization framework was selected for this study because of its emphasis on the "institutional mechanisms and individual processes through which graduate students are socialized to the norms of 'professional practice'" (p. 67). Furthermore, the framework incorporates the processes of knowledge and skill acquisition, investment, and involvement of graduate students, which have been the primary focus of previous research based on outcome measures in explaining the differential patterns of student learning and growth (Astin, 1984, 1985; Bean, 1985; Cabrera, et al., 1993; Pace, 1980, 1984; Pascarella, 1985; Tinto, 1975, 1987, 1993).

The framework has four stages in the developmental process of role acquisition (anticipatory, formal, informal, and personal) that reveal the different states of identity and commitment of students to their programs (see Table 2). Furthermore, there are three core socialization elements (knowledge acquisition, investment, and involvement) which, as stated by Weidman and his associates, are interrelated:

...it is the acquisition of specialized knowledge and skills (knowledge acquisition) coupled with participation in formal preparation for a professional role (investment) which promotes identification with and commitment to a professional role. Similarly, it is the student's interaction with role incumbents (involvement) that provides opportunities to become aware of appropriate

professional attitudes (knowledge) and to be sponsored for membership in a profession (an investment). (Weidman et al., 1998, pp.17-18).

Table 2. **The Core Elements and the Developmental Nature of Professional Socialization**

| I. STAGES | II. CORE ELEMENTS | | |
|--|---|---|--|
| | A. Knowledge Acquisition: | B. Investment: | C. Involvement: |
| A. Anticipatory: | Learns of role through media outlets and observation of role incumbents. | States interest in role/status by applying in school/rejects alternatives. | Begins to think of self in role. |
| B. Formal: | Competencies are emphasized in developing skills/knowledge. Expectations are clear. Students selected by faculty. | Values, attitudes, ethics, and beliefs of the profession emphasized. Pride, self-esteem, make change difficult. | Interactions allow students to compare their skills & competencies in role tasks. Demonstrates competence. |
| C. Informal: | Students learn implicit/informal role expectations. Status attained within peer group. | Relationships developed between students and faculty. Tenure in role makes it difficult to give up. | Involvement increased b/n faculty/students. Confidence increased in role activities. |
| D. Personal: | Students reach the cognitive dimensions of the role in acquiring adequate skill /competence. | Mentoring relationship developed. Sense of obligation in expectations. | Solidarity increased b/n faculty/students. Publications & presentations with faculty. |
| III. ENGAGEMENT (NATURE OF IDENTITY/COMMITMENT) | | | |
| A. Anticipatory: Identification with stereotypical dimensions of role. | | | |
| B. Formal: Identifies with the role (problems, ideology, motives, research, etc.) | | | |
| C. Informal: Increasing identification with professional role. Interaction with practitioners. | | | |
| D. Personal: Professional and personal role needs congruent. Claim to be a professional. | | | |

Source: Weidman, Twale & Stein (1998).

A final aspect of Weidman et al.'s (1998, 2001) framework is the engagement phase, which reveals the outcomes of socialization through professional role identity and commitment. A student's degree of commitment is examined through: 1) their identification with the role problems, tasks, and knowledge (cognitive); 2) their development and sense of obligation to adopt the normative role expectations out of loyalty and commitment (cohesion); and 3) their internalization with problems, ideology, and motives of the professional role, as well as merging and carrying out the professional role expectation (control).

In sum, Weidman et al.'s (1998, 2001) professional socialization framework suggests that professional socialization for graduate students is achieved through a process in which the students: 1) enter a graduate program with values, beliefs, and attitudes about themselves, as well as anticipated professional practices; 2) are exposed to normative pressures exerted by faculty, peers, society, and professional organizations and practice; 3) assess the salience of the normative pressures in attaining personal and professional goals; and 4) assume, change, or maintain the values, aspirations, identity, and personal commitments that were inherent upon entering a professional graduate program (Weidman et al., 1998, 2001). Thus, socialization can be defined as a "product of a gradual accumulation of experiences of certain people, particularly those with whom

we stand in primary relations, and significant others who are actually involved in the cultivation of abilities, values, and outlook” (Manis & Meltzer, 1968, p. 168).

The lack of research on the contributing influence and effect of academic environments in explaining students’ learning and cognitive development during their college experience indicates a need to assess and understand *how* disparate academic environments contribute to the differential patterns of change and stability in their respective students’ abilities, interests, and values (see, for example, Smart & Feldman, 1998; Smart, Feldman, & Ethington, 2000). The present study addresses this need by employing Holland’s (1966, 1973, 1985, 1997) theory of vocational behavior to identify and assess the underlying salient traits and assumptions of the academic environments in which faculty are hypothesized to require, reinforce, and reward students for the acquisition of such. Weidman, et al.’s (1998, 2001) professional socialization framework is also utilized to identify the institutional mechanisms and individual processes through which graduate students are differentially socialized to the norms of professional practice.

Methodology

Qualitative (structured interview) methodology is used to conduct the inquiry. Structured interview methodology was chosen for this study because of its appropriateness to the type of research question; its relevance to the problem; and its ability to expand understanding of the problem; that is, the assessment and understanding of *how* disparate academic environments contribute to the differential patterns of student growth and learning through the processes of professional socialization. Because the study is grounded from structured interviews, which are bound by time and context, the inquiry will not be generalizable across institutions. However, the deductive logic and rich description afforded by structured interviews *does* make it feasible to make applications to similar higher education settings and environments (True, 1989).

Due to the lack of research on the contributing influence and effect of academic environments in explaining students’ differential patterns of change and stability (e.g., Smart & Feldman, 1998; Smart, Feldman, & Ethington, 2000), and the emphases of the aforementioned research on the effects of colleges on students examining outcomes measures as opposed to processes (e.g., Pascarella, 1985), qualitative methodology is appropriate for this inquiry. In trying to assess and understand the processes of professional socialization between faculty and students, a descriptive examination of the process and meaning through structured interviews is essential (Creswell, 1994). In addition, characteristics of a qualitative research problem include: 1) that the concept is “immature” due to a conspicuous lack of previous research; 2) a need exists to explore and describe the phenomena; and 3) the nature of the phenomena may not be suited for quantitative measures (Morse, 1991, p. 120). The aforementioned research is consistent with these assumptions and characteristics in relation to the focus of the current study (e.g., Baldwin & Thelin, 1990; Feldman & Newcomb, 1969; Pascarella, 1985; Smart & Feldman, 1998; Smart, Feldman, & Ethington, 2000).

The present study, however, does differ in one respect regarding the assumptions of qualitative methodology in that it will utilize deductive rather than inductive logic. In other words, this inquiry will reason from theory to experience or from the general to the particular (True, 1989). Unlike the more purist approach to qualitative inquiry, the

present study will employ theory to provide a necessary framework for examining the research problem rather than building concepts and theories from details (Creswell, 1994).

Participants

Twenty-four, full-time, associate or full professors from a Research II university were interviewed for this inquiry. All of the participants interviewed have earned a Ph.D., D.M., D.M.A., or D.M.Ed. (Doctor of Philosophy, Doctor of Music, Doctor of Musical Arts, Doctor of Music Education, respectively) and have taught graduate courses. Graduate level faculty were chosen for their appropriateness to Weidman et al.'s (1998, 2001) professional socialization framework for graduate students. Associate and full professors were chosen for their amount of experience within the academic environment. Although the actual amount of experience at a given position was not known at the time of selection, it is reasonable to assume that any fully-tenured professor has had an adequate amount of practice in her or his academic field, and thus, have been socialized themselves to their respective majors and environments. In addition, the graduate faculty members chosen for this study were selected based on their participation as a member or chairperson on either a Master's thesis or Doctoral dissertation, hence ensuring their degree of involvement in the professional socialization of graduate students. There are four clusters of faculty members (N = 6) representing four of Holland's (1966, 1973, 1985, 1997) six academic environments (Investigative, Artistic, Social, Enterprising). The Investigative academic environment is represented by the Department of Mathematical Sciences; the Artistic environment by the Department of Music; the Social environment by the Department of Psychology; and the Enterprising academic environment by the Department of Management Information Systems and Decision Sciences. The Conventional and Realistic academic environments were excluded from the study due to the lack of departments and personnel available for examination at this particular institution; for example, the Conventional academic environment contains only one department- Accounting, while the Realistic academic environment contains only three departments- Electrical Engineering, Engineering Technology, and Mechanical Engineering.

Design

Qualitative structured interview methodology was used to reveal the processes of professional socialization of graduate students within the context of Weidman et al.'s (1998, 2001) professional socialization framework and Holland's (1966, 1973, 1985, 1997) theory of vocational behavior. Weidman et al.'s framework was utilized in the formation of faculty interview questions in which the stages and core elements of professional socialization are revealed (see Table 2). The stages, core elements, and engagement processes of professional socialization are all represented, ensuring a yield of the most comprehensive information regarding the institutional and individual processes through which graduate students are socialized to the norms of professional practice. The anticipatory stage of Weidman et al.'s framework was excluded due to the absence of any actual socialization process between students, faculty, and the institution. In addition, it is

a process in which the student initiates through media outlets, observation, application, and self-actualization, which cannot be revealed accurately through the dialogue and responses of faculty members. The structured interview questions are presented in the appendix.

Holland's theory was utilized in identifying and assessing the respective underlying salient traits and assumptions of the academic disciplines/departments in which faculty are hypothesized to require, reinforce, and reward students for their acquisition of such. The academic departments of the Research II university are classified into the six academic environments proposed in Holland's theory based on *The_College Majors Finder* (Rosen, Holmberg, & Holland, 1989). Table 3 shows the specific academic departments classified according to the six academic environments.

Table 3. Academic Departments Classified According to Holland's Academic Environments

| Holland Academic Environments | Academic Departments |
|-------------------------------|---|
| REALISTIC | Mechanical Engineering, Electrical Engineering, Engineering Technology |
| INVESTIGATIVE | Anthropology, Biology, Microbiology, Economics, Geological Sciences, Geography, Mathematics, Chemistry, Audiology, Sociology, Physics, Civil Engineering, Biomedical Engineering, Educational, Psychology, Educational Research |
| ARTISTIC | Art, Music, English, Theater and Dance, Foreign Languages |
| SOCIAL | Psychology, Educational Leadership, Criminology, Human Movement Sciences, Political Science, Philosophy, History, Curriculum and Instruction, Consumer Science, Educational Counseling |
| ENTERPRISING | Communications, Law, Journalism, Marketing, Management, Finance, Insurance and Real Estate, Management Information Systems |
| CONVENTIONAL | Accounting |

Source: Rosen, Holmberg, & Holland (1989).

Procedure

The graduate faculty interviews were conducted over a three-month period. Data collection was conducted with tape recordings and written notes to ensure that all information was accurately reported. Each question, adapted from Weidman et al.'s (1998, 2001) professional socialization framework, was asked in a uniform manner, beginning with the first cell (Formal-Knowledge Acquisition) and ending with the last cell on the framework (Personal-Engagement).

Analysis

The findings of this study are based on the narratives of the faculty members in answering the interview questions, as well as a cross-case report summarizing the commonalities and differences in the findings across the twenty-four participants in the context of Holland's (1966, 1973, 1985, 1997) theory. Each participant response was written before proceeding to the next interview in order to increase the accuracy of the reporting. As the unit of analysis is the graduate faculty members representing each of the four academic environments (Investigative, Artistic, Social, Enterprising) as postulated by Holland, the interviews are compared and contrasted against one another in order to determine *how* each academic environment contributes to and facilitates the professional socialization of graduate students through an examination of each respective environment's individual processes and institutional mechanisms in which Weidman et al. (1998, 2001) have presupposed in their framework. Cross-case conclusions are drawn from the participant interviews, which represent a search for patterns of meaning using the elements of Holland's theory. Commonalities and differences across the individual faculty interviews are described, analyzed, and interpreted as the findings of the study.

In addition, it is reasonable to assume that a portion of the responses given by the participants (graduate faculty members) from the four academic departments (environments) will overlap with commonalities that are characteristic of any graduate-level program. This assumption is supported by the research of Morstain and Smart (1976) who found that faculty members in all academic environments share a common belief in the importance of: 1) an interest in learning as the primary motivation for education; 2) perceptiveness and understanding; 3) intellectual curiosity; and 4) knowing how to learn.

Limitations

The limitations of this study include the fact that the findings are not generalizable, as the researcher is part of the setting. In addition to qualitative methodology not being intended for generalizability, the focus of this study is on the individual processes and institutional mechanisms of professional socialization in academic environments for a single research institution (Creswell, 1994).

There are advantages and disadvantages to the researcher being part of the interview setting. One advantage is that the interview allows for greater flexibility in the questioning process. The interviewer can determine the wording of the questions, clarify terms that are unclear, control the order in which the questions are presented, and probe for additional and more detailed information, as well as collecting supplementary

information about the participant and their environment. Another advantage of interviews is the higher response rate as compared to mail questionnaires (Nachmias & Nachmias, 1981).

Despite interviews allowing for greater flexibility, it is that flexibility that may serve as a disadvantage as at times the personal influence and bias of the interviewer may play into the types of information yielded. Although interviewers are to remain objective, some cues or nonverbal communication may be given and may influence the answers of the participants. Another disadvantage may include negative attitudes by university faculty members in being interviewed about their relationships, academic and/or social, with students. Negative attitudes may influence the degree of openness of the participants.

While the limitations of this study are obvious, data collection procedures were devised to attempt to balance some of the limitations. By using written notes, as well as tape recordings, the disadvantage of bias was as adequately addressed as possible. In addition, the participants of this study were volunteering their time to the interview process. Thus, any negative attitudes towards the subject matter of the interview were avoided considering that the participants interviewed had given their permission in yielding the information needed to conduct this study. Finally, the identity of the participants will remain unknown. Hence, faculty members who participated in the interview process were assured of their anonymity and, in turn, should not have felt that their responses would somehow identify them as being the participants in this study. Therefore, no negative ramifications will be forthcoming.

Results

The following text will provide a description of the professional socialization mechanisms and processes as described by the interviewed graduate faculty in each respective academic department and/or environment (Investigative, Artistic, Social, and Enterprising). Furthermore, a new framework, having emerged from the theoretical underpinnings of Holland's (1966, 1973, 1985, 1997) theory of vocational behavior and Weidman, Twale, and Stein's (1998, 2001) professional socialization framework, will be presented in a manner for which the differential patterns of student learning and socialization can be understood.

Learning Attainment

The first segment of the graduate student socialization process appears to begin in the classroom in which students are formally introduced to the knowledge, skills, abilities, and competencies that are desired in the respective academic environments (i.e., Investigative, Artistic, Social, Enterprising) and/or departments (e.g., mathematical sciences, music) which house the students' choice of graduate major and/or field concentration. In addition, these competencies generally include skills and abilities related to graduate-level education as well, to include proficiencies in research, writing, and oral presentation. For example, a professor from the Department of Psychology (Social) stated, "The main competencies that I am involved in training graduate students is research and teaching skills. In order for the students to be able to teach well, they need

to have patience, understanding, and solid interpersonal skills.” Another professor from mathematical sciences (Investigative) explained further:

They (students) also have to master reading research papers, examine current research, and be able to write well. Writing in mathematics is very different than writing in other fields. It is really important that students work on their writing ability. Those who write well in math are recognized for that. They need to be able to publish research papers. It’s a hard thing to do.

While these competencies may be first introduced to students through a formal classroom setting (e.g., lectures, seminars, laboratories), the refinement of such skills and abilities may take place in any setting in or outside of the traditional classroom (e.g., library, home, conferences). As one professor of music (Artistic) explained:

One thing I do is have them (the students) enter competitions. To hear guitarists from other schools. They must attend guitar conventions. I try to get them as involved in the professional aspects of being a professional musician as possible.

The specific competencies associated with each respective academic environment, as well as those included as general competency requisites of graduate-level education can be found in Table 4a.

Table 4a. **Salient Academic Environment Attributes of the Learning Attainment Triad**

| | Investigative | Artistic | Social | Enterprising | Graduate Education |
|--|---|--|--|---|---|
| 1) Competencies | mathematical & technical abilities with computer software, precision, critical analysis | music & vocal performance, sense of musicality, open & sensitive to all diverse forms of composition | interpersonal skills, evaluative & assessment skills, teaching | business leadership, speaking abilities, analyzation skills | thoroughness, precision, clarity, quantitative skills |
| 2) Manners, demeanors, and temperament | caution, patience sharing ideas, working collaboratively | personal, emotional, expressive | friendly, open, cooperative resourceful | ambitious, assertive, good social behavior, | dedication, intellectual curiosity, good work ethic, discipline |
| 3) Role tasks | oral presentations, written research projects, teaching, internships | performing, research publications, teaching | research presentations & publications, internships, teaching | teaching, presenting & publishing research | research presentations & publications teaching, performing |

The second segment of the graduate student socialization process generally begins at a time parallel to when the graduate students are acquiring the abilities, skills, and competencies consistent with their respective academic environments and graduate-level education. Through the observation of peers and faculty members within the academic environment, students begin to recognize and assimilate various demeanors, manners, and temperaments that are in the normative display of individuals within that

environment in their approach to solving discipline-related problems. This response from a professor in management information systems (Enterprising) was a common theme in the department:

I always emphasize decision-making. How do you make a decision? I always try to emphasize one's assertiveness in this process as being an important element.

Two other responses from professors in mathematical sciences (Investigative) and psychology (Social) had perspectives that differed from the Enterprising viewpoint:

One of the things that we like to install in our students is the ability to collaborate with other mathematicians. Most of our work is done this way. We view the mathematical process as more collaboratively than competitively (in this department). We are trying to emphasize teamwork, so it's important that the students are open to working with others. If you do good mathematics, you will be successful and won't have to undercut anyone in the process (Investigative).

They have to have an open attitude. Kindness and support is very important, as is courtesy and mutual support. Treating me with respect is not a problem. What I want is for them to treat other students with respect. I hate competition. It is an essential American flaw that we are deeply competitive. They (the graduate students) must be open with other students in the lab. The people they meet in school will be their contacts or enemies depending on what your experience is (Social).

Similar to the competencies acquired by the students, these manners of approach are consistent with the salient attributes of their respective academic environment and/or graduate study (see Table 4a). The observation and acquirement of these manners, etc. can be either in a formal or informal setting, as graduate students have many opportunities to examine the actions and postures of faculty in learning how to act, think, and feel like those they are trying to emulate.

The third segment of the graduate student socialization process appears to occur when the students have acquired and practiced the knowledge, abilities, skills, and competencies of their respective academic disciplines and/or environments to a point in which they are comfortable in displaying these attributes in tasks that conform to the roles salient to that environment, as well as graduate-level education (e.g., teaching, research). Examples of these tasks and displays of competence are as follows:

The graduate students are perfectionists. They want to do everything perfect, and will spend a lot of time doing this. I would say it would be based on the perception of what is perfect to them. They are persistent. Generally, they are very confident. Their determination, persistence, and confidence reveal their competence (management information systems – Enterprising);

I would say professional performance with respect to research...My final assessment has to do with the two things; their (the graduate students') ease and

confidence in making oral presentations, and their ability to present their research results in writing or poster (psychology – Social);

They demonstrate their abilities through performing, whether it is in rehearsal or in the actual performance itself. They practice continually and hopefully are able to display their competency to the best of their abilities (music – Artistic).

In these examples, it appears that not only are the students demonstrating their abilities in tasks both salient of and relevant to their respective academic environments (see Table 4a), but they also see, to be incorporating the observed manners, demeanors, and temperaments of those professionals within the discipline to culminate into a performance, whether it be teaching, presenting a research paper, or displaying a talent, that is both satisfactory to the graduate faculty and indicative of the salient attributes of the academic environment.

Thus, the above segments in the socialization process of graduate students within their respective disparate academic environments (Investigative, Artistic, Social, and Enterprising) culminate to form the first of three specific frames that comprise the emerging framework originating from the present study's evidence. For the purposes of the present study, this first triumvirate is identified as the "Learning Attainment" frame. The label "Learning Attainment" is in reference to the totality of competencies, skills, abilities, manners, demeanors, temperaments, and role tasks salient to each respective academic environment, as well as graduate-level education for which graduate students must assimilate.

Association

The fourth segment of the socialization process for graduate students within their respective disparate academic environments (i.e., Investigative, Artistic, Social, and Enterprising) appears to originate inside the traditional classroom. However, the graduate students' exposure to and observation of the values, ethics, and beliefs salient to each respective academic environment for which this segment addresses is not limited to formal settings. Depending on the academic environment in question, graduate students at this juncture may either be formally lectured by faculty on specific values, ethics, and beliefs salient to their respective academic environment and/or graduate-level education, or these attributes may be conveyed to the graduate students through their simple observations of and experiences with faculty members when associating with them on various projects or class work. Examples included:

I am trying to express patience, study hard, not to be discouraged and to look and make certain, to read many sources, many books, and to ask many questions, of course always to be curious (mathematical sciences – Investigative);

One of the things I tell them (graduate students) is to perform a lot. They must be brave and confident in getting use to sharing their music and talents with others, as well as expressing themselves through their music (music – Artistic);

The value of communication! They (the students) have to successfully deliver the knowledge, and they must determine how well that knowledge has been received...They must know what the knowledge is all about, and what it's contribution is to the future, specifically if it relates to some organization's strategic goals (management information systems – Enterprising).

The specific values, ethics, and beliefs associated with each respective academic environment, as well as those values, ethics, and beliefs included as general requisites of students in graduate school can be found in Table 4b.

The fifth segment of the socialization process for graduate students pertains to the developing relationships between faculty members and graduate students. As faculty and students become more familiar with each other through experiences in and out of the classroom, the faculty begin assessing the graduate students for their display of attributes characteristic and parallel to their own and their respective academic environment. These attributes may include, but are not limited to competencies, attitudes, interests, values, beliefs, ethical behavior, and approaches to problem solving with discipline-related questions. In other words, all of the aforementioned attributes to which the graduate students have been exposed, and subsequently reinforced to display and practice in role tasks salient to their respective academic environments, as well as graduate-level education (see Table 4b). Examples included:

Table 4b. **Salient Academic Environment Attributes of the Association Triad**

| | Investigative | Artistic | Social | Enterprising | Graduate Education |
|---|--|--|--|--|---|
| 1) Values, ethics, & beliefs | academic integrity, honesty, patience, persistence, curiosity | imagination, expressive, courageous | care, sensitivity, responsibility, high ethics in helping others | value of communication | hard work ethic, dependability, professional courtesy & conduct, respectful, independence, academic integrity, commitment |
| 2) Student attributes & characteristics | independence, intellectual curiosity, ability | independence, initiative, originality | interpersonal skills | communication skills, ambition, assertiveness, open mindedness, aggressive | trust, honesty, punctuality, motivation, inquisitive, willingness to improve & work hard |
| 3a) Formal activities | research publications & presentations | research publications & presentations performing | research publications & presentations | research publications & presentations | research publications & presentations |
| 3b) Informal activities | clubs, seminars, informal office meetings, lunch or dinner parties | private lessons, meetings, parties, social engagements | advising & counseling, lunch, dinner, & drinks | social gatherings | any opportunity for students to interact with faculty in an informal setting |

The main ones are the students who have a sense of the importance of what they are getting into. A sense of the importance of adhering to ethical practices and expectations in the field. To have a strong work ethic...They must be prompt and

thorough in their work. Attend well to details too. They must also relate well to children and teachers and people as a whole (psychology – Social);

The students who do best are the ones who seek out things to learn and who seek out faculty to interact with. Those that show up at my door and have questions concerning a lecture or those who ask about whether or not I will discuss at more length a certain matter. Those are the best. Those that have the intellectual curiosity. Those that take the initiative and seek out knowledge for the sake of learning (mathematical sciences – Investigative);

Their willingness to participate well above and beyond expectations in order to enhance the body of knowledge they (the students) are studying. Students must assert themselves and be ambitious about their responsibilities in the program (management information systems – Enterprising).

Through this identification of graduate students who share commonalities with specific faculty members, the relationships appear to either become more personal in that the faculty members and students share similar interests, and thus develop a mutual respect and a sense of collegiality with one another; or a stronger tie between the faculty member and graduate student appears to form which, in turn, becomes a “mentor-apprentice” relationship where the student has the opportunity to interact closely with the faculty member on projects both internal (e.g., class lectures and development) and external (e.g., journal articles, conferences) of the academic department and/or environment. It should be noted, however, that the common attributes shared among the faculty and graduate students in either scenario, whether it be a solid student-faculty relationship or a mentor-apprentice relationship, can be of equal level, in that there is not necessarily a set degree of shared attributes that determine the depth of the relationship. Rather, it is the congruence between the two personalities, as well as the commonalities and attributes that compose the developmental aspects of the relationship that determine its depth.

The sixth segment of the socialization process of graduate students pertains to the amount and quality of the association between the graduate faculty and students in their respective academic environments. At this juncture in the socialization process, the graduate faculty and students appear to increase their collaborative activities salient to their respective academic environments, as well as graduate-level education in both formal and informal settings (see Table 4b). Formally, students and faculty members collaborate on various projects or tasks to include original research publications and/or presentations at professional conferences that are representative of those projects, tasks, and activities salient to each respective academic department and/or environment. These activities enable the students to get exposure to other professionals in their field, and furthermore give them experience in professional activities that are reinforced and encouraged by the demands of the academic environment.

Teaching is important, but many students do internship-like work in business organizations. Being able to deal with real world problems is very important. They (the students) must go out and identify various situations and problems.

Sometimes the scenarios are so difficult, that they could amount to a dissertation topic in itself. Examining real world problems is essential in understanding problem solving and the difficulties within. It helps the students become confident in their abilities. Or sometimes not so confident (management information systems – Enterprising);

We provide them here at the University with several opportunities to perform. Through the opera productions we have on campus, our students perform roles that we have worked on here in the studio in performances. Several others have competitions all over the country, while others participate in internship-type programs. We call them apprenticeship programs, where they train with professional performers (music – Artistic).

Informally, the graduate faculty and students may engage in social activities external of the academic department (e.g., lunch & dinner parties), or they may interact in private meetings or lessons for counseling and/or advice. These activities seem to serve as opportunities for the students and faculty to discuss more personal matters, as well as academic matters in settings outside of the classroom. In addition, these informal activities may allow the graduate students and faculty to engage with one another in a more social-friendly environment; away from other students, faculty, or administrators from their academic department and/or environment, as well as the institution itself. As one psychology professor explained:

I usually have lunch with students. Some of the students meet with faculty for drinks on Fridays, and at times I will join them. I usually try to use these situations to talk to students about opportunities with me in other areas. I edit a journal, so I do offer my students the opportunity to learn more about that process. They can read manuscripts and review them. I also have some students edit my own articles, to get them involved in more personal activities (Social).

Thus, the above segments in the socialization process of graduate students within their respective disparate academic environments (Investigative, Artistic, Social, and Enterprising) culminate to form the second of three specific frames that comprise of the emerging framework originating from the present study's evidence. For the purposes of the present study, this second triumvirate is identified as the "Association" frame. The label "Association" is in reference to the totality of values, ethics, beliefs, characteristics, and activities salient to each respective academic environment, as well as graduate-level education for which graduate students must assimilate from and associate with graduate faculty members.

Retainment

The seventh segment of the socialization process for graduate students pertains to faculty recognized indicators that reveal graduate students' successful identification with the professional role of their respective academic disciplines and/or environments. These indicators may include various student activities, projects, or cognitive abilities displayed

or conveyed to the graduate faculty that are consistent with the salient attributes of their respective academic environments, as well as graduate-level education. Regardless of the types of displayed or conveyed indicators or the time-frame for which these may occur, the graduate faculty from each respective academic environment recognizes these directives as being vital and important. These indicators appear to allow faculty to assess the progress and eventual completion of the graduate student as a professional representative of their department and/or discipline. As two professors from management information systems and psychology explained:

The one thing I see is the confidence in the student. You can sense that. They may come to your office and discuss their interests. They may ask for leads or charts, that sort of thing. You can tell by the quality of their discussion and participation (Enterprising);

When my students interview and accept positions, I know that I have succeeded in my job in training them for professional work, whether in the public arena or private. When they win awards, take leadership positions, or publish work in journals, all of those are ways that tell me that they are identifying with the professional role. Also, when they are able to secure grants and participate in extra activities that go beyond being a practicing psychologist. I know then that they have learned something (Social).

Table 4c. **Salient Academic Environment Attributes of the Retainment Triad**

| | Investigative | Artistic | Social | Enterprising | Graduate Education |
|--|---|--|---|---|---|
| 1) Identification indicators | research publications & presentations, breadth of interest, teaching skills | research publications & presentations, interactions with professionals, auditions, performances, association with professional organizations | self-identification, research publications & presentations, recognition for original work, job interviews | self-confidence, prominence of original work, promotions in business organizations | research activities, teaching, associations with professional organizations, recognition for original work, networking with professionals in discipline |
| 2) Faculty contributions to student identification | sharing personal experiences, facilitating involvement in professional associations, networking, career planning, & research journals | sharing personal experiences, facilitating involvement in professional associations, networking, career planning, & research journals | sharing personal experiences, facilitating involvement in professional associations, networking, career planning, & research journals | sharing personal experiences, facilitating involvement in professional associations, networking, career planning, & research journals | sharing personal experiences, facilitating involvement in professional associations, networking, career planning, & research journals |
| 3) Practitioner indicators | research publications & presentations, products, collaboration, balance between teaching & research | performances, research publications & presentations, flexibility with responsibilities & people | internship completion, research publications, first job independent of mentor/institution | experience in research publications & career positions in business, contribution to body of knowledge | experience in jobs, research, & with individuals within the discipline, teaching |

The specific student activities, projects, and cognitive abilities associated with each respective academic environment, as well as those indicators included as general requisites of students in graduate school can be found in Table 4c.

The eighth segment of the socialization process for graduate students pertains to the graduate faculty's overall contribution to the successful identification of students to the professional role of their academic department and/or discipline. In general, the graduate faculty from each respective academic environment appear to facilitate involvement for the graduate students in professional organizations, research journals, and conferences that possess attributes parallel to their own (see Table 4c). In other words, each affiliation or activity facilitated by the graduate faculty from each respective academic environment is associated with discipline- and/or environmental-related subject matter that is consistent with the knowledge reinforced to their students. Furthermore, other manners by which the graduate faculty contribute to the students' identification with the professional role of their discipline includes sharing personal experiences within the academic field, assisting in career planning within their respective academic environment, and facilitating networking with other professionals from academic environments that parallel their own. Examples included:

Well, I subscribe to different mailing companies that give lists of various auditions in which all professionals in opera need to be aware of. I let them know right away that they are going to be tracked a certain way, and it is my job to make sure that they are preparing their repertoire the way they are supposed to know it. They must also know what the top 25 operas are in the United States so that they know them when they are asked to sing them. I see that they get to a good photographer. I see that they have a good resume or portfolio (music – Artistic);

Networking is a big thing, especially at conferences. I also encourage my students to present not only at local and regional research conferences, but also at national conferences. I try to get them as much exposure as possible. If we are discussing a research paper, and I know the author, I always try to give them anecdotes or other bits of information about my experiences with that person. So, I tend to include any of the professional experiences I have had in my discussions with students (psychology – Social);

Networking. Introducing students to other professionals. Getting students involved in industry-related projects. I ask them to get involved with local associations, both professional and at the local level. I assume that this is the best we can do. Contacts are very important (management information systems – Enterprising).

These professional activities and experiences facilitated by graduate faculty appear to give students opportunities to encounter environmental conditions and individuals with attributes salient of their respective academic environments which, in turn, seem to encourage and reinforce their attraction to occupations and roles consistent to that environment.

The ninth and final segment in the socialization process for graduate students pertains to the point in time in which the graduate faculty consider a student a practitioner of their academic discipline and/or environment. Similar to aforementioned role tasks (e.g., teaching, oral presentations) and collaborations with faculty (e.g., research projects) in which the graduate students are required, reinforced, and rewarded for the display of such as demanded by their respective academic environments, as well as the requisites of graduate-level education, this recognition of students as practitioners appears to be largely determined by the successful and consistent display of specific student activities, projects, and cognitive abilities characteristic of and salient to their respective disparate academic environment (see Table 4c).

...students who could publish one or two papers by themselves or with someone else. And they have to be able to cooperate with each other. Teamwork. To find someone else to cooperate, to work, and to get interested in other people's research and vice versa (mathematical sciences – Investigative);

When you see them (the students) perform at a student production here or with the opera. When they can honestly say that they don't have a lot of vocal problems or from some technical problem. When they can teach another person. That is very important because when you can teach someone, you also solidify what it is you believe in. Very important! (music – Artistic);

The degree is one part, but the internship is very important. If the supervisor in the field says that this person has the appropriate knowledge and skills to do the internship; and to complete the internship, I think, is central to us. We know they have the professional behavior and code of ethics to follow. Evaluations of their skills and competency on the internship are essential. They can then function fully as school psychologists (psychology – Social).

Through these overall student displayed attributes, the graduate faculty may compare and assess the students on their improvement and refinement of those activities, projects, and cognitive abilities salient to their respective academic departments and/or environments that are considered essential and necessary to master as professionals of their discipline.

Thus, the above segments in the socialization process of graduate students within their respective disparate academic environments (Investigative, Artistic, Social, and Enterprising) culminate to form the final third of three specific frames that comprise of the emerging framework originating from the present study's evidence. For the purposes of the present study, this third triumvirate is identified as the "Retainment" frame. The label "Retainment" is in reference to the totality of contributions to and indicators of the graduate students' successful identification with the professional role salient to each respective academic environment and/or discipline, as well as graduate-level education for which the students must assimilate and retain in assessing and determining their future success as a practitioner of their respective discipline.

Implications & Recommendations

The evidence of the present study, revealing the socialization mechanisms (Learning Attainment, Association, and Retainment) salient to each respective academic

environment and graduate-level education as encouraged and reinforced by faculty has broad implications for administrators, counselors, academic department chairpersons, and graduate coordinators. A firm understanding of the diversity of academic disciplines and their respective “rites of passage” may assist students in their initial selection of academic majors and subsequent adjustment to and persistence in assimilating the distinctive norms and values of disparate academic environments.

Furthermore, the revealed evidence also contributes to understanding the acute differences and diversity of academic departments (environments) and the faculty and students who work within those environments. By utilizing the Disparate Academic Environment Socialization Framework (DAESF) (see Tables 4a, b, and c) the differential patterns of student learning and development may be better understood in the context of the fundamental diversity that has historically defined American colleges and universities. This diversity is reflected in systematic differences in the professional attitudes and behaviors of faculty members associated with distinct clusters of academic disciplines and with dissimilar patterns of change and stability in the abilities and interests of college students who major in distinctive academic environments, each with its own prevailing set of preferred norms and values.

The evidence strongly suggests that faculty members in different clusters of academic disciplines appear to create distinctly different academic environments as a consequence of their preference for alternative goals for undergraduate and graduate education, their emphasis on alternative teaching goals and student competencies in their respective classes, and their reliance on different approaches to classroom instruction and ways of interacting with students inside and outside of their classes. The evidence presented from this study and others has been consistent in establishing that distinctive academic environments created by their respective faculties appear to have a strong socializing influence on the change and stability in the abilities and interests of their students, that is, what students do and do not learn or acquire as a consequence of their collegiate experiences. In general, the present study supports the conclusion reached by Pace (1990) that academic disciplines (environments) are a primary influence on “the extent and direction of student progress in college” (p. 76). In essence, students learn what they study, which is to say the distinctive repertoire of professional and personal self-perceptions, competencies, attitudes, interests, and values that their respective academic disciplines/environments distinctly reinforce and reward (in addition to the specific content/factual knowledge associated with the discipline).

Thus, results of the present study should encourage scholars to ground their future studies of student learning and development in theoretical frameworks that recognize the centrality of academic environments and their faculties to student learning. If scholars of higher education continue to ignore the manner by which faculty in specific academic environments teach and interact with students in and outside of classroom settings and continue to subsume these specific matters under a more general assessment (i.e., differences *between* institutions rather differences *within*), then much of the potential influence of the specific academic major/environment on patterns of student change and stability will remain hidden. The Disparate Academic Environment Socialization Framework provides one approach to examine such differences.

In addition, the results of the present study raise some interesting questions that warrant investigation through further research utilizing the structured interview questions

and/or the Disparate Academic Environment Socialization Framework. For example, it would be very beneficial to the further development of research on the professional socialization of graduate students if a similar study was undertaken with graduate faculty representing different academic disciplines/departments as the origin of the data collection – specifically within the context of Holland’s (1966, 1973, 1985, 1997) academic environments.

Studies examining the responses of graduate students would be another contribution to research in this area. A replication of the present study using graduate students’ responses to the structured interview questions could yield information that may enhance the DAESF, and thus provide further evidence of its validity. On the other hand, contrasting information may result from the students’ perceptions of their graduate education. All of which, however, may be very beneficial to the totality of understanding in graduate student socialization research. Other investigations could utilize the DAESF with either graduate students or faculty that focuses on one specific academic discipline/department different from the ones featured in the present study in order to assess any emerging similarities or differences to the DAESF that may be revealed.

Conclusion

The accumulative evidence of the present study, revealing the academic environmental mechanisms of the professional socialization process of graduate students as classified by Holland’s (1966, 1973, 1985, 1997) theory of vocational behavior and Weidman, et al.’s (1998, 2001) professional socialization framework, provides a better understanding of the differential patterns of student learning and growth. Through an examination of the core elements and developmental nature of professional socialization, the manners in which graduate faculty actually engage the socialization process are exposed, and thus, have contributed to the formulation of a new theoretical framework of socialization within disparate academic environments (Disparate Academic Environment Socialization Framework).

As presented earlier, academic departments have become the environments for which graduate students learn the attitudes, interests, values, and competencies salient to their academic major (Smart, Feldman, & Ethington, 2000). Furthermore, the influence of academic departments on patterns of change and stability of college students are manifested through student interactions with departmental faculty, who, in turn, organize their research and teaching in their respective academic department and/or environment (Feldman & Newcomb, 1969). Through these interactions, the graduate students are encouraged, reinforced, and rewarded for their display of attributes salient to the academic discipline, and thus academic environment. This process of socialization occurs through environmental demands which: 1) stimulate graduate students to perform preferred activities of the academic environment; 2) foster their respective competencies; 3) encourage students to see themselves in ways consistent with the preferred values of the academic environment; and 4) reward students for the display of the preferred values of the academic environment.

The Disparate Academic Environment Socialization Framework illustrates the magnitude and influence of academic environments and the faculty members therein for understanding the differential patterns of student growth and learning in graduate-level

education. If academic environments reinforce and reward attributes, interests, and competencies salient to and manifested within each respective classified academic environment as postulated by Holland (1997), then it is reasonable to expect that the graduate faculty within each respective academic environment and/or department would emphasize and encourage attributes, interests, and competencies that are consistent of and parallel to that environment's demands. These expectations were confirmed in the present study.

Another aspect illustrated in the Disparate Academic Environment Socialization Framework is the procedural means by which graduate faculty appear to train and socialize graduate students to the professional norms of their respective discipline. Rather than focusing on outcomes (what *has* happened), the DAESF reveals the process of *how* these outcomes have occurred, by revealing various role tasks, activities, techniques, and manners which graduate faculty utilize in preparing students to be practitioners of their respective discipline. This explanatory process is successfully accomplished when students, after entering a specific graduate program, have: 1) been exposed to the professional norms of the academic discipline and/or environment through peer, faculty, departmental, and environmental demands (Learning Attainment); 2) assessed the salient demands of the academic environment in the attainment of self-interest and/or organizational goals (Association); and 3) assimilated the attitudes, interests, and values salient to the academic discipline and/or environment (Retainment) (Weidman, et al., 1998, 2001). Thus, the DAESF, identifying the attitudes, interests, values, normative standards, and politics of the examined academic majors and environments, provides the formula by which the graduate students must recognize, participate, and assimilate in order to successfully complete their programs.

In sum, the Disparate Academic Environment Socialization Framework contributes to our understanding of both graduate faculty and students. Holland's theory (1966, 1973, 1985, 1997), as well as Weidman et al.'s (1998, 2001) conceptual framework provides a theory-based way, combined with conceptually and empirically-defensible classification procedures, to examine differences in the professional norms, values, and activities of graduate faculty who train and socialize their graduate students to the same. The combined and adapted theories via the DAESF allow us to explore the differential patterns of change and stability in students' abilities and interests as a consequence of their collegiate experiences in graduate-level education. Thus, the evidence of the present study as illustrated in the DAESF contributes to previous theoretical models developed in efforts to understand student behavior, integration and involvement as a means for explaining the effect of institutional and student-related factors on the differential patterns of student learning (Astin, 1984, 1985; Bean, 1985; Cabrera, et al., 1993; Pace, 1980, 1984; Pascarella, 1985; Tinto, 1975, 1987, 1993).

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Appendix

Professional Socialization Framework Interview Questions

Knowledge Acquisition

- Formal:* What specific competencies do you emphasize to students, as being the most important in developing the skills and knowledge needed to fulfill the role expectations of your discipline?
- Informal:* What informal role expectations (attitude & behavioral clues) of your discipline are emphasized to students?
- Personal:* How do students display their competence in acquiring the cognitive dimensions of the expected role?

Investment

- Formal:* What are the values, ethics, and beliefs of your discipline that are emphasized to students?
- Informal:* What student attributes or characteristics are essential in developing student-faculty relationships?
- Personal:* What are the obligations and/or expectations you require in a mentoring relationship?

Involvement

- Formal:* How do students demonstrate competence in role tasks?
- Informal:* What do you do to increase the involvement between yourself and a student?
- Personal:* What do you do to increase the solidarity between the student and yourself?

Engagement (nature of identity/commitment)

- Formal:* What indications become prevalent to you when students are successfully identifying with the professional role of your discipline?
- Informal:* How do you contribute in increasing a student's identity with the professional role of your discipline?
- Personal:* At what point do you consider the student a practitioner of your discipline?

Adapted from Weidman, Twale and Stein (1998, 2001).

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