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ADD OTHERS AND STIR:

CONTEXTUAL INFLUENCES ON INTERGROUP PREJUDICE

AND FRIENDSHIP FORMATION

by

DAVID EDWARD LIVERT

A dissertation submitted to the Graduate Faculty in Social/Personality Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York

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Abstract

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by

David Edward Livert

Advisor: Professor Tracey A. Revenson

Over the past 50 years, considerable research and interventions have demonstrated that positive intergroup contact between members of conflicting groups can result in prejudice reduction. More recent formulations of social contact theory have emphasized the importance of friendship formation as well as affective processes in achieving desired effects. This study examined the relationship between intergroup contact, friendship formation, and prejudice reduction using a longitudinal design and multilevel analyses to capture both the dynamic and contextual influences involved in contact effects. Participants consisted of 236 chef students at a chef training school in the U.S. Northeast. The school's curriculum provided a 'natural experiment.' Students were randomly assigned to 14 groups in which they took kitchen skills classes, taught by a chef instructor. Three outgroups were examined: female chef students, Baking students, and career changer students. Eight questionnaires were administered over the four months of the study. Additional data were collected through informal interviews, field observation, and archival research.

Intergroup contact resulted in a decrease in male students' prejudice toward female chef students. However contact also resulted in an increase in first career students' prejudice toward Career Changers chef students. The formation of intergroup friendships did not mediate either of these relationships, as predicted by the study's theoretical model. Consistent with the study's predictions, participants in kitchen groups with high task cohesion and cooperation were more likely to form intergroup friendships. Potential sources of divergent contact effects were evaluated. Recommendations to the chef school based on the study's findings are also included.

ACKNOWLEDGEMENTS

A number of people contributed to the development and conduct of this research project and it is my absolute pleasure to finally express my gratitude to them. First things first. Thanks go out to my old friend Andy Arrow and chef Susan Wright for plugging in the light bulb.

The project would not have been happened without the incredible enthusiasm and hospitality of the Culinary Institute of America in Hyde Park, New York. I was fearful that such a well-respected institution would not be willing to bother with a graduate student who wanted such long-term access to the institution and its students. My worries were unfounded. In October of 2001, I retrieved a phone message from Kathy Zraly who indicated her interest in the project and eagerness to meet and talk about it. From the moment I hear Kathy's voice and enthusiasm, I knew the project would happen. Thanks to you Kathy and all of the incredible people I've met at the CIA. Particular thanks goes out to Chef Fatigati, Pardus, Rascoll, and Tonelli who allowed me to spend so much time in their kitchen skills classes. Thanks too to my friends to the Writing faculty, Registrar's office, Student Life Office, and all of the servers at the Apple Pie Bakery. I look forward to our continued relationship.

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Although she may not know it, Anne Reid is a great mentor whose excitement about psychological theory and research is infectious. Anne has been the source of valuable advice and support throughout my dissertation. She also helped pass out the Krispy Kremes to deprived chefs and their students. Thanks to Pauline and Brian for being such wonderful friends to Roblyn and me – we'll finally all done!

Tracey Revenson has been a fantastic advisor. Her excitement and support has never flagged, even when mine has. She brings out the best in her students. She has really motivated me to be intellectually creative and I certainly would never had pursued such an ambitious and rewarding project without her. She gives all of herself to students and it has been one of the privileges in my life to be one of them. I will also never think about purple ink in the same way.

Time to express my love and gratitude to my partner Roblyn. We've had the privilege (and pain) of setting big goals and, inevitably, attaining them. Through graduate school we were like mountain climbers. Whenever I thought I had reached my limits, there was always a familiar voice a few feet above me encouraging me. Roblyn's voice was always there, despite the fact that she was climbing the mountain too. Guess what? We did it.

This dissertation is dedicated to my mother, Marjorie Cherry Livert. While I was writing my doctoral exam and dissertation proposal, collecting data, and writing the thesis, Mom was slowly losing her memory and wonderful talents to Alzheimer's. My regret is that she can't really share in my achievement, particularly when it was Mom's firm belief in the importance of education that was her gift to me.

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CHAPTER ONE: INTRODUCTION

Chef: "A cook cooks and a chef chefs. The chef is the synchronization of the transformation of the kitchen. He blends all the cooks together, all the different departments. The pantry and the lines and the banquets. Making sure that the assembly line comes together, the proper timing and all" (Fine, 1994, p.90).

"What is the most difficult thing about your job?"

Chef: "The people, the employees. Having to know each one of them inside and out...How to handle every person who has a different personal makeup" (Fine, 1994, p.90).

"What's the most satisfying thing about what you're doing?"

Chef: "For me, it's the personal relationships that develop. With other cooks, and the waitresses. Some people fade in and out, but they become friends. For a while a lot of Cubans worked there, and I became close friends with a lot of them....you kinda become acquainted with an international cast of characters." (Fine, 1994, p.114)

Common to all of these remarks by practicing chefs is an appreciation of the kitchen as a setting for intergroup interaction, cooperation, and conflict. Chefs experience firsthand the effects of working with a diverse group of people under conditions that are intimate, stressful, and characterized by a high degree of interdependency. The third chef describes a positive outcome of such intergroup contact:

the formation of friendships with people who are members of another group (which may be defined by ethnicity, class, gender, or role in the kitchen). Through such intergroup friendships, individuals can change their previously negative outgroup opinions in a positive direction. This relationship between intergroup contact, friendship formation and prejudice reduction has been referred to as the social contact hypothesis (Allport, 1954; Pettigrew, 1998).

In its simplest form, the social contact hypothesis states that intergroup prejudice and hostility can be reduced through the creation of situations in which members of one group (an ingroup) have positive interactions with members of another group (an outgroup). The positive interactions are presumed to generalize to other situations and other outgroup members (Pettigrew, 1998). Although social contact theory can be applied theoretically to any two groups, most related research and intervention has concerned locations of significant intergroup conflict such as racial groups in the U.S. (e.g., Jackman & Crane, 1986), ethnic groups in Northern Ireland and in Israel (e.g., Hewstone et al., 2000), and native/immigrant status in Europe (e.g., Pettigrew, 1997).

Contact hypothesis researchers have more recently investigated the powerful effects of intergroup friendships on prejudice reduction (Hewstone, Cairns, Crisp & McClernon, 2000; Pettigrew, 1997; 1998). Although friendship formation is a dynamic process (Altman & Taylor, 1973: Berscheid & Reis, 1998; Blieszner & Adams, 1992; Levinger, 1980), it is generally treated as static in social contact studies (e.g., Pettigrew, 1997). Distinctions between friendship phases are highly relevant to the process of friendship formation and how intergroup contact can reduce prejudice (Blankenship, Hnat, Hess, & Brown, 1984; Bleiszner & Adams, 1992).

The goal of this research is to expand current social contact theory by examining the influence of social contexts on the development of intergroup friendships. The study's theoretical model is shown in Figure 1. The relationship between social context and friendship formation is proposed as a moderator model in which the effect of intergroup contact (A) over time results in the formation of intergroup friendships (C). Elements of intergroup contact (A) include group composition and duration of contact. The development and deepening of intergroup friendships (C) leads to changes in intergroup perceptions (D) such as attitudes, beliefs, and feelings. Further, a proposed relationship between contact (A) and friendship (C) predicts that optimal social climates (B) will enhance the effects of contact.

In the remainder of this chapter, the theoretical model in Figure 1 will be applied to a specific social setting: the professional kitchen. First, the research pertaining to the dynamic nature of friendship formation is reviewed. Second, the dimensions of intergroup contact that can influence friendship formation are discussed. The third section discusses social climate conditions that are potential moderators of intergroup contact on intergroup friendship formation. The fourth section introduces the specific social setting of this research project: The Culinary Institute of America (CIA). The final section contains the study's rationale, research objectives, and specific hypotheses.

The Nature of Intergroup Friendships

Intergroup friendships, or any friendships for that matter, do not form instantly. Instead, friendship formation is a dynamic process that can transform strangers into long-term friends (Altman & Taylor, 1973; Berscheid & Reis, 1998; Blieszner & Adams, 1992; Levinger, 1980). The majority of interpersonal relationship researchers -- as well

as social contact researchers -- have yet to incorporate fully the developmental nature of the friendship process into empirical work.

Phases of Intergroup Friendships

Relationship theorists have identified three phases of friendship formation important to intergroup friendship formation (Altman & Taylor, 1973; Berscheid & Reis, 1998; Blieszner & Adams, 1992; Levinger, 1980). I term these stages *acquaintance formation*, *friendship formation*, and *friendship maintenance*. These stages are sequential but do not have an unvarying time frame: Some friendships develop rapidly whereas others remain in the acquaintance phase for an extended period of time.

Acquaintance formation

The acquaintance formation phase spans the course of relationships from first encounter to continuing casual interactions and represents the gate-keeping phase for friendship formation. To become acquainted, individuals must become aware of one another. The period between when two time people become aware of each other and their first interaction may span a few moments or a few weeks. Continued interaction occurs if there is sufficient interest on the part of at least one individual. If first encounters are negatively reinforcing, further contact may be avoided. However, avoiding contact may not be possible (e.g., attending a college class, neighbors) and people in repeated contact with one another do not necessarily form acquaintances.

As acquaintances interact and learn one about one another, perceived similarities can increase attraction and lead to friendship formation (Harrison, Price, & Bell, 1998; Newcomb, 1961). At the same time, such interaction and disclosure may reveal differences between acquaintances (e.g., political orientation) that prevent the

acquaintance from developing into a friendship (Griffit & Veitch, 1974; Newcomb, 1961). Alternatively, those in a developing friendship may find ways to mutually accommodate to dissimilarities, minimizing differences or regarding them as less important (Lazarsfeld & Merton, 1955). We form acquaintances with only a fraction of people we come into contact with, and we form friendships with an even smaller proportion of our acquaintances (Levinger, 1980). Moreover, we form a number of acquaintances with others we regard positively but, for a variety of reasons, do not befriend.

Friendship formation

Through early contact, individuals learn about one another. Friendships form if individuals anticipate that such a relationship will be rewarding or if the friendship serves certain goals such as providing desired information (Berscheid & Reis, 1998). People have different expectations for friends compared with acquaintances (Rands & Levinger, 1979, cited in Levinger, 1983). For example, friends are more likely to engage in interpersonal behaviors characterized by affect, both positive (e.g., praise) and negative (e.g., criticism). As friendships develop, relationships become increasingly intimate (Hays & Oxley, 1986) and broad (Altman & Taylor, 1973). Interdependence – the influence of a partner on the other's behavior, motivations, and attitudes – also increases as friendships deepen (Rusbult & Arriaga, 2000). Interdependence in a friendship also increases the potential for negative affective reactions (Fiske & Ruscher, 1993): As friendships deepen, events such as disagreements with friends or a friend's misfortunes become potentially more upsetting to us.

Friendship maintenance

Friendships last a few months or a lifetime. Once established, friendships deepen, remain stable, or diminish. Some friendships change because of changes in proximity and accessibility; some because of dissimilar life transitions (career and family choices); and some friends simply lose interest in the friendship. Most research on long-term relationships has focused on stability in marital relationships, in part because there are clear transition points in marriage (e.g., separation, divorce) that are absent in adult friendships (Berscheid & Reis, 1998).

Two dimensions of friendship maintenance are particularly important to intergroup friendships: intimacy and duration. First, closer friendships are more affectively charged than superficial friendships. They are potentially more influential in changing outgroup perceptions, particularly if the outgroup perception has a strong affective component (Vanman & Miller, 1993). Second, the longer the friendship is maintained, the longer the outgroup member is part of an ingroup member's network, can influence it, and can potentially form ties with other members.

Phases of Intergroup Friendship Development

Consideration of friendship phases is important to understanding intergroup friendship development. First, what constitutes important similarity in friendship changes over time. By definition, members of an intergroup friendship dyad are dissimilar on at least one dimension. This dissimilarity -- outgroup membership -- is perceived to imply differences on "deeper" characteristics such as attitudes and values (Harrison, Price, & Bell, 1998). However, if acquaintances can be formed and subsequent interaction reveals similarities on deeper characteristics, outgroup status

becomes less important. Thus, the importance of similarity in group membership diminishes as acquaintances become friends (Blankenship, Hnat, Hess, & Brown, 1984; Bleiszner & Adams, 1992). The challenge for intergroup friendships is to achieve positive interaction and disclosure such that common attitudes or interests are identified and the initial dissimilarity becomes less important.

Second, affective dimensions of the intergroup friendship become more important as the relationship progresses. Friendship formation involves increasing self-disclosure (Altman & Taylor, 1973; Altman, Vinsel, & Brown, 1981) and individuals disclose more to those people whom they like initially. This represents a potential obstacle for intergroup friendships: if initial liking is hampered by dissimilarity, then one may be less likely to disclose personal information to a intergroup acquaintance and friendship formation may be slower.

Some studies suggest that intergroup friendships may not achieve the same level of intimacy as ingroup friendships. In a sample of German adults, Verbrugge (1977) showed that similarities in age, marital status, and values were more likely to distinguish best friends from close friends than were similarities in occupation and ethnic background. On the other hand, in a study of New York apartment dwellers (Nahemow & Lawton, 1975), racial similarity did not differentiate casual from intimate friends, nor did it distinguish friendships formed early upon moving into the building from those formed later. Likewise, Slavin (1995) reported that cross-racial friendships formed in a class with cooperative learning structures were as close as ingroup friendships in a traditional class.

Maintenance of intergroup friendships is desirable because such dyads can influence the social networks within which they are embedded. These social networks, in turn, influence attitudes and behavior. Social contact outcomes are rarely discussed in terms of their implications for social networks. Members of an intergroup dyad become members of each other's personal friendship networks and can develop new intergroup relationships as a result (Sarason, Sarason, & Gurung, 1997; Slavin, 1995). Hamilton and Bishop (1976) found such secondary intergroup contact effects for the movement of Black families into predominately White neighborhoods. In the short term, direct interactions with outgroup members led to reduced prejudicial attitudes. Over a longer period of time, prejudicial attitudes of neighbors who had no intergroup interaction were also reduced.

Research on such "secondary" effects of social contact is rare and offers a potentially rewarding avenue for understanding dyad-social environment influences (e.g., Labianca, Brass, & Gray, 1998). Although the end goal of social contact research and interventions is the reduction of conflict between groups, social contact theory is usually framed as change in individual feelings, beliefs, and behavior that results from interpersonal contact. How the effects of a friendship dyad radiate (Kelly, 1971) to one's network of friends – particularly those not in the social contact situation -- is rarely addressed, but is clearly critical to the ultimate goals of social contact research.

Recent contact hypothesis formulations have stressed the importance of intergroup acquaintance and friendship formation as one of the primary mediators of intergroup contact effect on prejudice reduction. Intergroup friendships lead to greater reductions in prejudice (Pettigrew, 1997; Pettigrew & Tropp, 2000; Wright, Aron,

McLaughlin-Volpe, & Ropp, 1997) and decreased intergroup hostility (Hewstone et al., 2000). For example, Hewstone and his colleagues' (2000) study of Protestants and Catholics in Northern Ireland living in highly segregated communities found that the number of an individual's intergroup friendships was inversely related to reported intergroup hostility. Consistent with these formulations, I propose that friendship operates as a mediator of intergroup contact.

Dimensions of Intergroup Contact

Dimensions of intergroup contact can influence intergroup friendship formation and, in turn, intergroup prejudice. These dimensions include composition, proximity, duration and social network accessibility.

Composition

The likelihood of forming intergroup friendships is constrained by the composition of the social setting in which such contact occurs. If settings are homogeneous (e.g., in terms of race or ethnicity), then acquaintances formed within that context will reflect that homogeneity. If settings are relatively diverse, then the probability of forming intergroup acquaintances is greater. Indeed, many settings in which an individual has repeated social interactions -- schools, workplaces, churches, teams, clubs, pubs, and volunteer organizations – are fairly homogeneous (Feld & Carter, 1998). Friendship networks formed from these settings will reflect this homogeneity. We choose our friends, but are constrained by the contexts in which we interact as to who is in a position to become a friend (Fischer, 1982).

In addition to directly influencing who becomes a friend, the composition of a social setting influences which social categories are distinctive and, as a result, which

dissimilarities are salient in that setting. Intergroup friendship implies at least one dissimilarity. The influence of such dissimilarity can depend upon the distribution of that characteristic in the setting, also known as optimal distinctiveness (Brewer, 1991; Deaux & Major, 1987; Acitelli, Duck, & West, 2000). The implication of being a statistical minority (or majority) on intergroup friendships is unclear. Several studies suggest that those in a statistical majority have greater friendship homophily (e.g., Sigelman and Welch, 1993). One explanation is statistical: the probability of avoiding contact with an outgroup member is greater if one's ingroup is in the statistical majority. Other studies suggest that greater homophily exists among those in the statistical minority (Huckfeldt, 1983; Mehra, Kilduff, & Brass, 1998). There are several obvious advantages to preferring homophilous friendships if one is a member of a salient statistical minority in a setting, including optimal distinctiveness, solidarity, empathy, and political influence (Brewer, 1991; Mehra, Kilduff, & Brass, 1998).

As friendships develop and become more intimate, continued interaction becomes less dependent on any single setting as friends interact using the telephone, over email, or arrange to meet each other in different settings (Hays & Oxley, 1986).

Physical proximity

Proximity (or propinquity) refers to the accessibility of one person to another within a social setting. Its importance depends upon the phase of the relationship. Virtual encounters aside, physical proximity is a necessary condition for social interaction and for an acquaintanceship to be formed. Proximity can increase attraction between potential acquaintances (Berscheid & Reis, 1998; Festinger & Kelley, 1950).

Mere exposure can lead individuals to judge strangers in a more positive way (Bornstein, 1993; Zajonc, 1968).

Proximity continues to influence friendship formation past the acquaintance phase: it is easier to form friendships when partners are highly accessible. Festinger, Schacter, and Back (1950) found that housing development residents were most friendly with those with apartments in closest functional proximity to their own, i.e., those located closest to their most frequent paths through the building.[1] In another study (Segel, 1974), police academy trainees were most likely to form and maintain friendships with those who lived closest to them in the dormitories or were seated closest to them in classrooms. This pattern occurred despite the fact all trainees had become well acquainted with one another by the end of the six-month study.

As friendships deepen, interaction may transcend a single social context (e.g., school or work). However, to the degree that ties are maintained by interaction in those contexts, setting changes (e.g., graduation or a job transfer) make the friendship more difficult to maintain.

Research suggests that proximity is more influential to intergroup than ingroup friendships. In their study of New York City apartment buildings, Nahemow and Lawton (1975) found that residents formed intergroup friendships with those in close proximity to their own apartment. At the same time, ingroup friendships were distributed far more widely in the apartment complex, suggesting that intergroup formation is more sensitive

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[1] This study has been criticized (Cherry, 1995) for omitting important contextual information that over-emphasizes the role of proximity: The authors studied friendships among married women, many of whom were stay-at-home mothers. Having a nearby neighbor who could watch a child for a brief period of time was quite valuable.

to proximity. Likewise, in a study of Israeli junior high school students (Eshel & Kurman, 1994), the relative proximity (in classrooms) of students was a stronger and more consistent predictor of peer preferences for social interactions than was ethnic similarity. These findings suggest that proximity facilitates the conversion of intergroup acquaintances to friendships.

Duration of intergroup contact

The longer individuals share a social setting, the greater the chance for interaction and possibility for acquaintance formation. Time provides initial strangers the opportunity to converse and, through these conversations, identify common interests and preferences. How the duration of intergroup contact influences intergroup friendship formation is a function of the length of shared experience for those in the setting, activities in the setting, and degree of task interdependence (Harrison, Price, & Bell, 1998). Our tendency to be attracted to similar others will make interactions with those who overtly differ from us less likely, regardless of the passage of time, if there are no structural pressures for interaction or a norm to interact with strangers.

Sustained intergroup contact can motivate individuals to form acquaintances given that the contact will continue for some time. Anticipation of future contact motivates individuals to interact sufficiently such that intergroup strangers become intergroup acquaintances (Simpson & Harris, 1994). Feelings that arise from sharing ongoing physical proximity in some intergroup situations can lead to a common ingroup identity that fosters intergroup friendships (Gaertner, Rust, Dovidio, Bachman, & Anastasio, 1994).

Social networks

Most social contact studies have ignored the networks in which intergroup friendships are embedded (Kadushin & Livert, 2002). Social networks consist of individuals linked to one another by formal or informal relationships (Hall & Wellman, 1985). Friendship networks can influence acquaintance formation through the social contact they provide: Friends of friends are potential acquaintances and future friends. Because friends of friends have common ties with others in the network, acquaintance formation requires less initial attraction than among strangers who lack common friends (Milardo, 1986). Networks provide communication to members about each other's attitudes and preferences. As a result, friendships may develop more quickly as a greater amount of information about an acquaintance's history, preferences, and attitudes are available through common friends.

Friendships within dense networks possess more inertia: it may be difficult to terminate an existing friendship or to add new "outside" friends to the network. Those in densely clustered networks are less likely to develop new friendships with individuals who are unknown to other friends (Salzinger, 1982). If intergroup acquaintances do deepen into friendships, dense networks may resist the addition of the outgroup member. On the other hand, network density favors friendship maintenance (Salzinger, 1982). For intergroup friendships, this presents an interesting paradox. Intergroup friendships are more likely to be formed in loose personal networks; once established, however, dense networks may act to retain the intergroup friendship in the network.

Social Climate Influences on Intergroup Friendship Formation

According to the contact hypothesis, individuals who have positive contact with members of an outgroup can generalize their experience to the entire group, resulting in prejudice reduction (Allport, 1954; Pettigrew, 1998). Contact theorists have identified several optimal conditions that facilitate contact effects in intergroup situations including: equal status between members of ingroups and outgroups, cooperation between individuals in pursuit of common goals, normative approval of intergroup contact, and opportunities for acquaintance formation (Allport, 1954; Cook, 1962; 1985; Pettigrew, 1998). Considerable evidence confirms the importance of these optimal conditions in achieving positive changes in intergroup perceptions. A meta-analysis of 203 social contact studies by Pettigrew and Tropp (2000) found the strongest effects occurred in studies in which optimal conditions for intergroup contact were present. In a sense, these optimal conditions represent potential moderators of the relationship between intergroup contact and prejudice reduction (Wittig and Molina, 2000). Five conditions that potentially moderate intergroup contact will be tested in this study. The first three -- equal status, cooperation, and the pursuit of common goals -- are part of the original set of conditions described by Allport (1954). Two other potential contextual moderators examined in the study are: competition within the group and conflict within the group.

For optimal prejudice reduction, groups within the contact situation should be of equal status (Pettigrew, 1998); that is, individuals from one group should have the same status as members of the other group. Unequal status in the contact situation leads individuals to interact in stereotyped roles associated with the difference in status, reinforcing outgroup stereotypes and prejudice (Forbes, 1997). Clear status distinctions

between members of different groups also maintain or even exacerbate intergroup anxiety (Vanman & Miller, 1993), preventing the experience of intergroup interaction from being seen as positive. Equal status provides a similarity that cuts across group distinctions – "everyone is in the same boat" – that can be the basis for making acquaintances or forming friendships.

Researchers have operationalized equal status with demographic characteristics existing prior to entering the contact situation (e.g., socioeconomic status) as well as those within the situation (e.g., new army recruits in basic training). Field studies have confirmed that intergroup contact is more likely to be associated with prejudice reduction if it occurs between individuals of equal status (e.g., Jackman & Crane, 1986; Smith, 1994). Some contact theory studies claim status equality in the situation by inference. For example in Deutsch and Collins' (1951) study of a housing project, all the residents were new to the building. Other researchers claim status equality through the assignment of equal roles and responsibilities within the situation, such as in a cooperative task (Cook, 1978; 1985). In the majority of studies, equal status is based on the researcher's appraisal or experimental manipulation rather than the subjective experience of individuals in the contact situation. Smith (1994) observed that few researchers have directly measured whether those in the setting perceive status equality (see Gaertner et al., 1994 for a study incorporating such measures). Indeed, Pettigrew and Tropp (2000) suggest that differences in the effect size associated with intergroup contact between statistical majority and minority members that "[w]e should regard contact theory's specified optimal conditions not as intrinsic features of the situation itself, but rather as

conditions that can be perceived in contrasting ways by members of their interacting groups" (p. 109).

Cooperative Interdependence

Cooperative or positive interdependence exists when individuals engage in tasks in which: cooperation is required for goal achievement and individual's rewards are positively linked – all members of a group either all succeed or fail. The impact of cooperative interdependence on intergroup friendships in the classroom has been the subject of hundreds of education studies (e.g., Cook, 1978, 1985; Johnson, Johnson, & Maruyama, 1984). Although many different approaches to structuring cooperative tasks have been employed (Slavin, 1995), such as the jigsaw classroom (Aronson & Gonzalez, 1988), the pattern of results is very consistent. Compared with traditionally structured classes with no student interdependence, or classes with competitive interdependence, students in cooperative classes are more likely to be attracted to and form intergroup friendships. These friendships are likely to be as deep as those formed with ingroup peers (Johnson, Johnson, & Maruyama, 1984; Slavin, 1995). Cooperative climates provide students with an opportunity for not only acquaintance formation, but also stereotype disconfirmation, the identification of common interests, and responsibility toward fulfilling a common goal.

Cooperation and Competition

Many settings, however, have a combination of cooperative and competitive interdependence (Forbes, 1997). Even if competition is not part of the incentive structure in a cooperative classroom, it is unlikely that individual motivations to outperform others would cease to exist. Intergroup competition in the cooperative classroom is a

particularly powerful motivation (i.e., between cooperative groups) (Slavin, 1992). A student may cooperate with outgroup members on a team and form intergroup friendships, but that student is also in competition with the outgroup members on other teams (Forbes, 1997). This situation would lead to intergroup friendship formation within the cooperative team, but not necessarily to a generalization of positive attitudes and affect to the outgroup as a whole.

Although settings are constructed to elicit cooperative interdependence, they may not be experienced as such by persons within them. Mixed models – settings that are both cooperative and implicitly competitive – are typical of real life conditions found in the workplace or recreation field; is difficult to label a situation as purely one or the other (Forbes, 1997). Competitive and cooperative interdependence are best thought of as two potentially co-existing dimensions of a social setting.

Conflict

Perceptions of conflict within a social setting may or may not be related to either cooperation or competition. In settings with cooperative task structures, conflict may arise when a team member is perceived to be not contributing their share of work. On the other hand, conflict may arise solely because of personal antagonisms unrelated to the task structure in the setting.

A Setting for Intergroup Friendship Formation

This study took advantage of the social structure, social climate, and culture of the Culinary Institute of America to study the relationship between these intergroup contact, contextual variables and their consequences in terms of intergroup friendship formation and change in intergroup perceptions. Located in Hyde Park, New York, the Culinary

Institute of America (CIA) is a private, residential college for training chefs. It is regarded as one of the top chef schools in the U.S. (Ruhlman, 1997, 2000). Over the past 50 years, tens of thousands of students have received degrees from the CIA. In any year, the CIA enrolls approximately 1,200 students in associate's and bachelor's degrees and programs in culinary arts or baking and pastry (CIA, 2001). Approximately four-fifths of students pursue a culinary arts degree.

Several aspects of the CIA led to its selection as a site for this study. Three naturally occurring ingroup-outgroup distinctions at the school permitted parallel tests of the study's hypotheses within the same setting. Moreover, these distinctions appeared to be psychologically meaningful in the context of the CIA. Owing to variations in both intergroup contact and social climate between kitchen groups, these contextual independent variables did not require manipulation by the Principal Investigator. Students could be studied from Orientation through the end of the first semester so that the friendship formation process between initial strangers could be examined. Finally, a highly structured curriculum relied upon the random assignment of students to kitchen groups, thereby eliminating potential confounds that might arise when analyzing variation in kitchen group contexts. The following section reviews the three outgroup distinctions employed in the study. Following that is a detailed description of the CIA as a social setting, which is essential for understanding the study's design and findings.

Ingroup-Outgroup Distinctions

Critics of social contact research have argued that group distinctions such as race or ethnicity may not always be the most psychologically meaningful to participants in a given situation (Dixon & Reicher, 1997). Indeed, the composition of a social setting can

influence *which* group category is salient, potentially affecting the pattern of intergroup friendships formed within that context (Brewer, 1991; Deaux & Major, 1987; Mehra, Kilduff, & Brass, 1998). This research will examine three ingroup/outgroup distinctions that are likely to be salient among CIA students.

Gender

Overall, women are in the statistical minority. Although the activity of cooking is constructed as "feminine" in Western societies, practitioners of the culinary profession – paid chefs -- are predominately male (Fine, 1994). Restaurant kitchens are places of "protest masculinity" in which male chefs must vigorously enact sexist/heterosexist behaviors to repair potentially damaged masculinity in an activity that is culturally coded as feminine (Michael Kimmel, personal communication, November 26, 2001). Although women make up roughly a quarter of the entering culinary class, CIA faculty acknowledge that many male students still consider the kitchen to be a male dominated domain (Ruhlman, 1997). Despite efforts at achieving an institutional climate of equality, sexist attitudes and behavior emerge in the teaching kitchens and many female students cope in this environment by performing these more masculine behaviors (CIA graduate, personal communication, April 2001).

Specialization

Culinary students are clearly in the statistical majority at the CIA. Culinarians employ disparaging terms for bakers (e.g., "dough holes" and "sugar babies"). Bakers and culinarians share the same classes during their first six weeks (*B block*) but, thereafter, have minimal formal contact with each other. Bakers feel slighted, as they have to take culinary skills class before they even enter a baking kitchen.

There is a notable overlap between specialization and gender. To separate the influences of group membership, information about friendships with other students will include both the friends' specialty and gender. Intergroup prejudice measures will employ cross-classified targets: male Culinary students, female Culinary students, male Baking students, and female Baking students. This permits examination of gender effects within specialty (male Culinary vs. female Culinary) and between specialties (male and female Culinary students vs. male and female Baking students).

First Career vs. Career Changer Students

Fewer than 15% of CIA students have pursued career outside the food industry prior to matriculation entering the CIA or are pursuing the degree as a "hobby" (John Storm, CIA Associate Dean, personal communication, November 11, 2001). Prominent chefs such as Anthony Bourdain (2000) disparage those who aspire to become chefs in their second careers, warning about their commitment to the vocation. Most second career chefs have worked for some time outside of the food industry, are older, and have minimal kitchen experience when entering the CIA (Ruhlman, 1997). This outgroup distinction is termed *Career Changers* based on the language used by the CIA on its web site (CIA, 2001).

Context and Social Climate: A Natural Experiment Employing Curriculum and Group Assignments

Instead of manipulating intergroup contact and context, this study relies upon natural variations in both at the CIA to examine their effects upon intergroup friendship formation and attitude change. A thorough description of the CIA as a social setting is important as the context represents the primary independent variables in the study. The

section details the Culinary Institute of America in terms of social structure, culture, and climate. The first section will describe the experience of students from Orientation through their first nine to twelve weeks at the school. The second section provides a detailed description of the next nine weeks, a kitchen class sequence in which a student's group becomes his or her most influential social unit.

Orientation

The CIA has a continually revolving front door, with roughly 80 students arriving every three weeks, 16 times throughout the calendar year to pursue either an Associates degree in Occupational Students (AOS) or Bachelor's in Professional Studies (BPS) degrees in Culinary Arts. About two thirds of students live in campus housing; residential students typically move into their dormitories the day before Orientation. On the night before Orientation, each residence hall has a meeting for all new entering students. The agenda for the meeting covers the basics of dormitory life, reviews school policy and introduces Residential Advisers. Two points are emphasized for students: First, that drug and alcohol policies are rigorously enforced at the CIA because, according to a residence hall director, "[there is the] idea that in culinary field there are problems with drugs and alcohol." The punishment for violating policies (i.e., drugs and alcohol in dormitories, drug paraphernalia, posters valorizing drugs) is suspension from the school and the threat that the student will "fall behind [your] group" and "won't graduate on time," according to a residence hall director. Before students are assigned to groups -- or even fully comprehend the group structure -- the importance of staying with one's group is emphasized. The second emphasis is on the importance of the dress code. Students are advised to wear business attire to the next morning's orientation, to be clean-

shaven, and to have minimal jewelry. One head resident advised students that "a tie would make you extra special."[2] (Nothing special was mentioned for female students.) Thus, the values of conforming to institutional norms and competition were clear a few hours after students arrived on campus.

The first day of Orientation begins with registration at 8 a.m. Students are already lined up to enter registration 20 minutes early. Without counting heads, the demographic composition of entering students is striking: most students are white, most are men, and they appear quite young. Male students are more clean-cut than at a typical American college and many appear to have had haircuts in the last few days. This is not surprising, given that students receive an orientation schedule prior to the event that states that the dress code for each day: business casual.

After registration students proceed to the bookstore for textbook purchases, then they are fitted for their chef's whites, and then they proceed to a large lecture hall to take their math and writing achievement tests. Entering students then eat their first lunch together, cooked and served to them by advanced students.

After lunch, students hear an introduction from a chef in the administration – usually a vice president or a dean. He is the first chef (in whites) who has interacted with students since their arrival. His opening remarks hint of the school's quasi-military nature:

Chef: "Good afternoon!"

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[2] Several male students in fact wore a tie the next morning. During each orientation observed by the Principal Investigator, students were taken aside by the Student Dean if they did not meet dress code requirements.

Other new students: "Good afternoon chef."

Chef [clearly not satisfied with the response:} "Good afternoon!"

Most students in unison: "Good afternoon chef!"

The group norm was adopted quickly at each of the four orientations that I observed. On the next day students respond "Good Morning Chef!" in the same sharp manner. Topics include the need for a dress code -- "so that everyone is on the same playing field, so that we focus on education" and the importance of creating bonds with other students. After the chef's speech, students hear a few welcoming remarks from the school's president as well as information from other members of the administration.

At 2:45, students are required to change into an Orientation Day t-shirt and participate in team building exercises. As they enter the school's gymnasium, each student receives a card randomly assigning them to one of nine groups with whom they will rotate through stations with team-building activities. Stations include exercises such as: trust falls, rocks in the river, team map, seesaw, lifeboat, story swapping, and a group juggle. CIA staff coordinate each activity, informing the students about services they provide for students (e.g., recreation, counseling, registrar, job placement) as well as reinforcing the importance of cooperation in teams. A recreation staff member at one station always took time to tell students about the CIA's paintball team, which had won several East Coast championships and competed head to head with West Point students (downriver from the CIA). He was very proud that they had beaten the Naval Academy that season (but lost to West Point). A consistent message runs throughout these activities: forming teams is part of your training as a chef. The team building session

ended with a group photo – 80 students forming a "C," "I," and "A" – followed by a mandatory reception/dinner with the school's president.

The second day of orientation begins with a presentation lead by the admissions director entitled "Creating a Positive Campus Climate" that deals with discrimination and harassment on campus. Students are told that "we don't tolerate harassment" and that those who harass other students "can't be true food service professionals." Three cases of sexual harassment are then presented as "Most discrimination cases we see [at the CIA] are sexual." Each case consisted of a short narrative; all involved men harassing women. Other sessions during the morning and early afternoon dealt with topics including fire safety, campus crime, externships, and stress reduction.

The second day of Orientation ends on a note rather discordant to the first. The dramatic highpoint of the day is at 4 p.m., when group assignments are distributed. Culinary students are assigned to one of four groups and start *B block* classes the next day; Baking students comprise a single group that starts *B block* classes as well. Culinary and Baking students who fail one or both of the achievement tests are assigned to a special *A block*, involving three weeks of remedial work before they begin the normal sequence of coursework. All classes meet each day during the block, between 9 a.m. and 5 p.m., a less onerous schedule that of *B block* students, who may start classes as early as 7 a.m. (a.m. groups) or may not finish classes until 6:30 p.m. (p.m. groups). Culinary and Baking students take *A block* classes together. *A block* usually consists of 20 or fewer students, who bond quickly. Being assigned to *A block* at Orientation was clearly a disappointment. Students would express anger with the Registrar's staff who distributed assignments and express frustration at having to drop out of the group with which they

just gone through orientation. Although a primary goal of the Orientation sequence is to instill a sense of teamwork and the value of cooperation, the assignment to *A* or *B blocks* and, within *B blocks*, to a.m. or p.m. classes runs counter to the team and group building exercises the day before. According to one male Culinary student interviewed during *B block* who was assigned to *A block* at Orientation: "Everyone who was in my group during team building I don't talk to now. I hang out with totally different people."

B and *C blocks*

Six weeks in length, *B block* is one of the distinctive features of the CIA curriculum (Rowe, 2001), consisting of classes in a traditional format: Gastronomy, Product Knowledge, and Food Safety. *B block* students never venture into kitchen. Most students do not have college transfer credits to satisfy the school's requirements for math and writing and also take culinary math in *B block*. Writing classes start *in B block*, continuing through end of the first semester (*E block*).

Gastronomy. All *B block* students take Gastronomy class, which introduces them to the social, cultural, technical, and historical influences on food production and taste. The course is taught in a lecture hall equipped with a demonstration kitchen and facilities for power point, video, and audio presentations. Requirements consist of exams, a short essay and two group projects. A typical class consists of a standard lecture (all instructors use the same power point presentation), a food tasting, a breakout session for group discussion, and a quiz.

For the group projects, the instructor randomly assigns students into groups. The final group project for Gastronomy is a presentation in which students assemble video, slides, drama, and music pertaining to a contemporary figure in the food industry (e.g.,

Thomas Keller, Jacque Torres). The written guidelines for creating the presentation are quite structured, including which topics about the subject should be presented, the minimal number of facts for each section, the specific assignment for each member of the group (e.g., "Member 2 is responsible for discussing the subject's philosophy"), and a 19-point checklist prior to the presentation. Individual performance in the group is likewise specified. The guidelines state that "each person must speak equally during the presentation" and include a 3 step list for "firing your partner," consisting of a verbal warning, written warning which must be copied to the instructor, and actual dismissal of the team member, which must take place 24 hours before the class presentation. Like the team-building exercises during Orientation, Gastronomy class is another opportunity for the institution to reinforce the importance of individual performance within a group.

There are two Gastronomy sections for each entering stream of students. Culinary students in the two morning (a.m.) kitchen groups attend the morning section; students in p.m. groups attend the afternoon section. Baking students typically attend the afternoon section. *B block* courses are the one time in which Culinary and Baking students take classes together. During *B block*, students are issued their chef's uniform, known as "whites," and, as a result, the assemblage of 34-40 students in Gastronomy contains more and more students "in uniform" as *B block* progresses. Even though Gastronomy is not a kitchen class, the wearing of whites requires complete adherence to the school's dress code: Students with untied kerchiefs are asked to tie them immediately and those missing a kerchief are required to go back to their dormitory and either get the kerchief or change out of the whites.

Writing. Most students take a 12-week writing class, which starts in *B block* and continues through the end of the semester. Writing class typically consists of a single Culinary or Baking group; consequently, this is the first time that an individual group's composition is salient to its members (excepting those students with transfer credits for the course).[3] According to writing instructors (personal communication), group "personalities" are evident from as early as *B block* and develop throughout the semester. In general, students' behavior is less "restrained" in writing classes than other classes, in part, because students perceive writing to be less relevant to their education. Most writing instructors have no food service experience, are female, and do not garner as much respect from CIA students. As early as *B block*, the importance of the Chef instructor's whites as an indicator of authority is clear. One perceptive writing instructor wears a CIA lab coat to class assumedly to take advantage of the influence of the CIA whites on classroom behavior.

Fabrication. After six weeks in *B block*, students start *C block*, Culinary students' first entry into the teaching pantries and kitchens of Roth Hall. In addition to continuing their writing class, Culinary students take a "fabrication" sequence of Meat Identification (seven days) and Seafood Identification (seven days). Baking students take Nutrition (a lecture course) and Baking Ingredients (taught in a pantry classroom). These *C block* fabrication classes – taken six to nine weeks after entering the CIA -- are the first time that students handle knives and food. Appearance in whites is mandatory.

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[3] A writing class sometimes includes one or two students who had failed writing on their first attempt and are not members of the student group. Baking students also sometimes are assigned to writing classes that consist primarily of Culinary students.

D block Kitchen Classes

The first day of *D block* is a milestone: The first kitchen class in which food will be produced by the student. Culinary students begin a nine-week Skills sequence that spans *D*, *E*, and *F blocks*. Baking students take Culinary Skills for Bakers, which covers most of the same content in 14 days as the Culinary students cover in 42 days. (It is not until *E block* – after 13 weeks at the CIA – that the Baking students finally bake.) Several facets of the kitchen classes are similar for both Culinary and Baking students: content, task assignments, team structures, and kitchen layout.

Content. Culinary students begin the Skills sequence learning basic knife cuts and preparation of stocks and finish the sequence cooking an entire meal. In Skills I (*D block*) and Skills II (*E block*), there is a new lesson and set of recipes each day. In Skills III, the same recipe is prepared two days in a row, but these recipes are rotated among the table teams (see below). Baking students also have a new topic each day.

Task Assignments. In addition to the food production assignments for each day, students also assume various class responsibilities. Each chef instructor employs a slightly different set of roles or daily task assignments and these assignments also vary between Culinary and Baking classes. In most classes, the Food Steward is responsible for checking in food from the CIA storeroom, verifying that all food required for that day's production is in the kitchen, making supplemental food orders, and doing an ingredients inventory. The Saniteur is responsible for the overall cleanliness of the kitchen at all times, proper storage of food products and ingredients, daily reports, and the monitoring of food products that are cooling down for later storage. In most classes, one or two students are designated as Food Stewards and Sanitors each day; students

assigned to these duties also may be empowered to delegate tasks to any student in the class.

Other tasks are typically assigned to teams of students. The Demo team is responsible for preparing whatever is required for the chef instructor to demonstrate for the day's food production. The Stock Team (sometimes divided into the Brown Stock team and the White Stock team) begins the day's stock preparation in the large steam kettles (a.m. groups) or monitors, cools, and stores the stocks for the day (p.m. groups). Stock teams also may be organized by activity: roasting bones, preparing mirepoix, monitoring kettles, and bagging/storage. Some chef instructors even assign specific area cleanup teams (e.g., pots and pans, burners, flattops, and counters, walk-in storage and refrigerators, sinks and floors).

Students are assigned to one task each day. The chef instructor typically uses an assignment scheme based upon the student's last name: Last names are numbered in ascending order and the assignments are then based on the assigned number. Daily task assignments are not completely random: Students with last names close to each other are more likely to share assignments than those with names farther apart in the alphabet.

Station Team Structure. In kitchen classes, students are assigned into small groups that share the same worktable or station. Students spend at least two thirds of a kitchen class at their station engaged in activities such as knife cuts, fabricating and mixing ingredients, plating food, or kneading dough. As students progress from *D block* on, the team of students assigned to a station becomes increasingly important. By *F block*, a student's daily grade is based largely upon the efforts of team at his or her station, rather than individual effort. The method of assigning students to work stations

varies between chef instructors but takes two general forms: rotating teams and standing teams. In a rotating team structure, students work at different stations each day with a different team of students. In a standing team structure, the same students work at the same station through the block.

The distinction between rotating and standing station teams is important as it structures social interaction among students. By sharing the same space over the course of 14 days, students become acquaintances or friends or form animosities, learn each other's strengths and weaknesses, and establish a team identity. In a rotating team structure, a student will interact with a greater number of classmates, but in a less predictable fashion; it may be more difficult for students in those classes to deepen acquaintances into friendships.

Kitchen Layout. Variations in the physical layout of the kitchen also shape social interaction and consequently structure group dynamics within the kitchen. Figure 2 shows five variations in the teaching kitchens where Culinary Skills I and II were taught. One important element is the arrangement of the team stations in the kitchen. Students in stations arranged in long rows were not able to maintain the same level of conversation and team as those arranged face-to-face across a common counter. The physical configuration of tables and stoves also constrained the size of station-based teams. Several teaching kitchens were arranged in two-person teams in which students stood side by side; others were arranged for four person teams. Larger teams introduced greater variations between students in common area cleanup, trips to get supplies. Who finished first and who finished last were also more salient in a team of four students than one two students. The placement of the chef's station was important too; students were

generally more orderly in close proximity to the chef. Chefs constantly moved around the kitchen, but some kitchens made surveillance more difficult. The placement and use of common equipment also shapes interaction within the kitchen. For example, in the baking kitchens, all students used the same curing machines and ovens. In contrast, each Culinary team either had their own stoves and flattops or shared with one other team.

E block: Skills II and Baking Techniques

Skills II for Culinary students is a continuation of Skills I, usually taught by the same chef instructor and in the same kitchen. Many chef instructors carry over the same task assignment rotation into Skills II. Differences between Skills II and the previous Skills I class emerged over the course of the block. Timelines were employed with increasing frequency, putting pressure on students to produce their daily product on time to be evaluated by the chef instructor. Students prepare food of increasing complexity and students first encounter competition for scarce resources. For example, on "pasta days" (days 22 and 23), there are only four pasta machines for the 16-18 students and only eight pots of boiling water, requiring some coordination between students who are individually graded. Pressure is increased to complete kitchen cleanup in less time. "Bad days" in a Skills II class are obvious to an observer when entering: pots are piled up, the floor hasn't been mopped recently, and the daily meal break is only a few minutes away.

A familiar sight in Skills II is a line of students waiting to have their dish evaluated by the chef instructor. This is often a chance for casual conversation between students, but it also is a competitive moment. It is obvious which students have finished their dish first and if one is within earshot of the chef's station, other students can hear the chef's feedback. The students' behavior after tasting is also a clue: returning to one's

station smiling and putting the dish down to sample it and share with others; returning to one's station and starting on the next task; or throwing the food in the recycling bin on the way back to one's station.

Baking Techniques is the first kitchen class that is physically located in the baking and pastry building, which is connected to Roth Hall by an enclosed walkway. The transition between the culinary and baking worlds is first appreciated by the nose: At a certain point leaving the walkway from Roth Hall, one no longer smells aromas of sautéing and stock production, but instead a smell of yeast and hint of flour. The baking kitchens have large glass windows opening onto the second floor hallway, which add a certain flavor of surveillance to the baking student experience: the second floor of the baking building is the route of most guided walking tours of the CIA by prospective students and their parents and tourists.

Common to the Culinary classes, students receive points off for tardiness and there is a timeline for production. Compared to Culinary Skills I and II, more coordination between Baking teams is required as ovens, curing machines, sheet pans and mixers may have to be shared. Students' grades are based primarily upon performance, which is based upon their station team's effort as well as individual participation, timeliness, and professionalism.

F block: Skills III and Hearth, Bread and Rolls

Skills III for Culinary students is considerably different than Skills I and II. The most important distinction is production: Skills III students produce food that is consumed by other students during family lunch or dinner. The production component adds urgency to Skills III that was absent in Skills I and II and requires even greater

communication and coordination between members of each station team. A major component of each student's daily grade depends upon the team's effort: the chef instructor rates each team's product in terms of food flavor, cooking, technique, and appearance on the plate.[4] Given that Skills III kitchens are typically smaller and more crowded than Skills I and II kitchens and that an increased production demand adds to the urgency of classroom activity, Skills III kitchens have a higher-pressure environment. The heat has been turned up since Skills I.

In contrast, for Baking students, Hearth, Bread, and Rolls represents a minimal change from Baking Techniques. The same chef instructor often teaches both courses in the same kitchen and the pace between the two classes is not noticeably different. Dough dominates the class and chef instructors spend a considerable amount of time helping students develop kneading techniques. Like Skills III, this is also the first real production course for Bakers: Many of the breads are used in the schools family or public dining rooms.

Interpersonal Communications and Supervisory Development

Like the Writing class during the first semester, the Interpersonal Communications classes span the second semester. The course was developed recently as an institutional response to perceptions that graduates need more training in interpersonal interaction.[5] The major topics covered include job search and career management skills, verbal and non-verbal communications, group problem solving, and

[4] It is sometimes difficult for chefs to distinguish individual effort when they assign daily grades.

[5] Students with sufficient college transfer credits are exempt from the course.

tolerance and diversity. The course was in a traditional lecture format with intermittent group discussions.

Students keep a journal throughout the course in which they are expected to record their experiences pertaining to a personal project for the class. Students identify an interpersonal communications weakness through self-assessment, establish communication goals and an action plan, detail practice and feedback in attainment of the goal, and present the project during a class meeting. One student wrote the entire journal on his chef whites. The public nature of the journal project constrains the variety of self-improvement projects undertaken by students.

A similar course for Baking students – Supervisory Development – is offered for three weeks during *F block* and is mandatory. Like Interpersonal Communications, a traditional lecture format is employed along with a textbook on supervision in the food industry. Each class develops a group project reflecting a theme covered in class; one group celebrated the diversity of the World Cup soccer games by baking breads from each country that had a team in the finals.

The CIA as a Structured Social Environment

This section reviewed how the CIA's curriculum structures the first four months at the school. Students cannot alter their schedule – in essence "group assignments" -- short of dropping out of a group or a block. Aspects of a paramilitary culture were also evident: dress codes, uniforms, the "yes chef!" response, and constant inspections of cooking areas. In a sense, this structuring represents the ultimate manipulation or independent variable in this natural experiment. The presence of literally hundreds of thousands of visitors a year – combined with the expectation that students will act

hospitably to any guests – adds to the stage-like quality of the school. As one descends the stairs that connect the public first floor of Roth Hall to the basement level with the teaching kitchens, one leaves the visiting public behind and encounters the gaze of chef instructors. Students sometimes receive unsolicited remarks from chef instructors (not their own) they pass in the hallway with regard to dress, conduct, or physical condition (such as using a crutch).

In addition to acclimation to the CIA's culture, one of the most important features of the first semester is the emergence of the kitchen group as the fundamental unit of social organization among students. Over the course of the semester salient group distinctions shift from the larger stream of entering students to a "split" into Culinary and Baking students to smaller groups of 16-18 students. Although contact with students in sister groups, other streams, or other specialties continues, they pale in comparison to the importance salience of the eight hours spent with one's group in class, not to mention additional time that may be spent in preparation outside of class for the next day's assignment. Ongoing contact with group members within the kitchen was a certainty. Students are gradually introduced to the interdependence and cooperation required in the kitchen; students also experience increasing levels of challenge and cooperation as tasks become specialized to various kitchen stations. Contact with kitchen group members is involuntary and – as mentioned above – depends on the task and team structure employed by the chef instructor.

Summary

The CIA provides an ideal setting for testing components of the social contact hypothesis. The curriculum assures continued contact with other students who have been

assigned, in a quasi-random fashion, to classes and teams. Three optimal social contact conditions are putatively present: cooperative interdependence, common goals, and status equality. A fourth condition -- institutional support of intergroup contact – is assumed to be present as well, but will not be investigated as a exogenous variable in this study. Crosscutting ingroup/outgroup distinctions – Culinary vs. Baking, male vs. female, and First vs. Career Changer -- appear salient as early as the first day of student orientation.

Rationale for the Study

Few studies have examined the relationship between intergroup contact on friendship formation and intergroup prejudice using a longitudinal design in an applied setting (for a rare example see Herek & Capitiano, 1996). Even fewer have explicitly tested intergroup friendship formation as a mediator of social contact or addressed how the social environment affects the friendship process.

Dixon and Reicher (1997) argue that social contact studies have ignored the highly flexible and contextualized nature of social categories, employing instead categories that may not be psychologically meaningful to study participants. Indeed, the literature pertaining to intergroup friendship formation as it might relate to social contact indicates that such relationships are strongly shaped by their social environment. To the extent that social settings influence what dimensions are salient and how similarity is judged (Acitelli et al., 2000), they also should influence intergroup friendship formation. However, relatively little research is available on how these influences play out across the phases of intergroup friendship formation and what network properties may be most important.

This study seeks to jointly consider dyadic, social setting, and social network influences on friendship formation. An understanding of intergroup friendship formation based exclusively on dyadic level processes overlooks strong environmental influences and overemphasizes volitional influences. Dyadic level processes, such as perceived similarity, do influence friendships, but also are conditioned by the social environment. On the other hand, a focus on environmental influences alone omits the role of agency in relationship formation as well as the complex interactions of environmental and dyadic level processes. To fully explicate the process whereby intergroup contact and resulting acquaintances/friendships do or do not reduce prejudice requires an approach that takes into account both micro-level (dyadic) and macro-level (social environment) processes of friendship formation. A multi-level or multi-domain approach to understanding friendships "acknowledges the fact that personal relationships do not operate independently of one another, but instead are influenced by social communication patterns and interactions taking place between the relationship participants and important others in their lives" (Sarason, Sarason, & Pierce, 1995, p. 616).

Research Questions and Related Hypotheses

This research seeks to expand current social contact theory by investigating the relationship between intergroup contact, social climate and intergroup friendships over time in a social setting that ostensibly meets the requisite conditions for positive outcomes (Pettigrew, 1998). This approach emphasizes intergroup friendship as a dynamic process rather than a static feature of social contact. By collecting data from students at regular intervals during their first semester at a culinary college, this research study specifically takes into account the dynamics of friendship formation, while also

testing social contact theory in a naturally occurring situation that involves major contextual change. The study will address the following research questions:

Does intergroup contact lead to positive attitude change?

A main effect of social contact is hypothesized: that greater intergroup contact will improve intergroup perceptions over time. In Figure 3, this would be depicted by a direct path between (A) and (D). The dependent variable is a within-subject *change* in intergroup perceptions between Orientation and the last data collection point in the study four months later. This question will be tested with three outgroups at the CIA. Intergroup contact will be based upon the participant's skills kitchen group during *D* and *E blocks*.

Are intergroup friendships a mediator of the intergroup contact effect?

In Figure 3, does (C) account for the relationship between (A) and (D)? It is predicted that greater intergroup contact is a positive predictor of the number of intergroup friends reported by the participant at *D* and *E block*s. The greater the number of intergroup friends should, in turn, predict a positive change in perceptions toward that outgroup. After controlling for intergroup friendships, the effect of intergroup contact on intergroup attitude change will become non-significant.

How do social contexts shape the relationship between contact and intergroup friendship formation?

This moderational relationship is depicted in Figure 4: the effects of contact (A) on friendships (C) will be conditioned by variations in contact (B). Context properties are hypothesized to *increase* the relationship between contact and friendship formation in

each of the following situations: when equal status is high, when cooperation is high, when competition is low, and when conflict is low.

What is the nature of intergroup friendships in terms of number of friendships, depth of friendships and the rate at which friendships develop and deepen over time?

The study will also explore the sources of variation in the proposed moderator and compare *intergroup* friendships to *ingroup* friendships at the CIA.

What is the nature of variation in social climate between kitchen groups and what are potential sources of this variation?

The study will also explore the nature of proposed moderators, dimension of kitchen group social climate during the skills class sequence at the CIA.

CHAPTER TWO: STUDY METHODOLOGY

Overview

This study tracked chef students through their first five months of classes at the Culinary Institution of America. The study's experimental design was based directly on the CIA curriculum and group assignment structure. The sampling frame included three streams[6] of students and the 14 groups (12 Culinary and 2 Baking) that they constituted. Students enter the school in streams every three weeks and each entering stream is divided into smaller groups, depending on specialty. Five types of data were collected: 1) Administration of eight questionnaires to all participants over the five-month study period; 2) Observation of student interaction in classes and during breaks, meals, and social events; 3) Informal conversations and interviews with students; 4) Conversations with CIA faculty and administrators; and 5) Information obtained from student applications, class rosters, attendance sheets, and grade rosters. Administration of the study's questionnaires was timed to particular phases of students' experience at the school: orientation, lecture classes, and kitchen classes.

Sample and Recruitment

The study's sampling frame consisted of 236 Culinary and Baking students assigned by the CIA Registrar to streams on January 4, January 23, and February 12, 2002.[7] I will refer to these three streams as 1, 2, and 3. On the second day of orientation,

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[6] This is the CIA's terminology for what social scientists would refer to as "cohorts."
[7] Six students who started with streams 1, 2, or 3 were excluded from the study's population for one of the following reasons: withdrew from the school, were suspended for six months, or transferred to another stream prior to E block.

students who passed both writing and math achievement tests were assigned quasi-randomly by the CIA Registrar's office to a first semester group and began classes the next day (known as *B block*). I use the term quasi-randomly because the CIA randomly assigns students to either "a.m." or "p.m." within which students are assigned either an "odd" or "even" group on the basis of the first letter of their last name. Some students requested "a.m." or "p.m." classes because of work or family commitments.

Students who failed one or both achievement tests began three weeks of remedial classes in math and/or writing (known as *A block*) that they had to satisfactorily complete in order to continue at the school. Once they passed *A block* classes, these students were assigned with the *next* stream of *B block* students.

Recruitment Procedures

On the first day of orientation, I introduced the study and invited students to participate.[8] A questionnaire packet was distributed which contained a cover letter/consent form to be signed by the student, the orientation questionnaire booklet, and a card for students to keep which detailed their rights as participants in the study.

Participation Rates. All but three students in the study's sampling frame completed at least one of the eight questionnaires over the course of the study (Table 1).

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[8] The cover letter (Appendix A) attached to the Orientation questionnaire served as the consent form. It described the study, identified the Principal Investigator as a graduate student completing his dissertation at the CUNY Graduate Center, provided information about the confidentiality and risks involved in the study, and indicated that participation was voluntary. Students signed this letter to indicate their willingness to participate. Informed consent was obtained in a different way from the 29 students who did not receive an Orientation questionnaire, but who were assigned to one of the study's streams. Most of these were *A block* students from December 1, 2001. These students signed a consent form during the administration of the second or third questionnaire. No student completed a questionnaire without signed consent.

Three-quarters of participants – 181 out of 236 – completed over half (five or more) of the study's eight questionnaires. Sixty-four participants (27%) completed all eight questionnaires. Participants completed an average of six questionnaires; this mean did not significantly vary by stream ($F(2, n = 235) = 1.15, p = .32$). Table 2 shows the participation rates for each questionnaire for all participants and for each stream. Students in Stream 1 were much less likely to have completed an orientation questionnaire than students in Streams 2 or 3 ($X^2 (2, n = 235) = 28.39, p < .01$). This is because this stream contained a number of *A block* students who had entered the CIA on December 1, 2001 before the study began and who did not have an opportunity to complete an orientation questionnaire, but started *B block* classes on January 3, 2002. If students who entered the CIA on an earlier date are excluded from the analysis, the participation rate for the orientation questionnaire in Stream 1 increases to 73% making it more equivalent to Streams 2 (83%) and 3 (84%). Stream 2 had relatively lower participation on the F2 questionnaire ($X^2 (2, n = 235) = 6.22, p < .05$) and the G2 questionnaire ($X^2 (2, n = 235) = 7.40, p < .05$) questionnaires. Male students were more likely to answer the D3 questionnaire than female students ($X^2 (n = 2) = 4.37, p < .05$); there were no other differences in participation by student sex. Baking students were more likely to complete the E3 questionnaire ($X^2 (n = 2) = 4.27, p < .05$); there were no other differences by specialty.

The Sample

A demographic profile of the sample appears in Table 3. The sample of 236 students included 36% women and 64% men, ranging in age from 18 to 55 with a mean of 23.9 ($SD = 6.5$). Additional demographic data on race/ethnicity and nation of origin

was obtained for 144 out of the study's 236 participants; time limitations prevented the acquisition of data for the complete sample. As shown in the bottom panel of Table 3, roughly half (53%) of participants had taken college classes before entering the CIA and roughly a sixth (16%) had earned a Bachelor's degree. The vast majority of participants were white (79%); 9% were Asian/Pacific Islander and 9% were Hispanic. Most participants were born in the United States (89%).

Selection of Cases for Analysis

All cases were considered eligible for inclusion in data analysis; thus the number of valid cases varies between analyses. The decision to retain all cases was based upon two rationales. First, because only 64 participants completed all eight questionnaires, limiting analyses to only those cases with complete data would severely reduce the statistical power of the study. Second, the number and breadth of the study's hypotheses made the identification of one or two high priority analyses difficult. If such analyses could be identified, then efforts could be made to create an inclusion rule or to utilize multiple imputation methods to fill in missing values. Such missing data handling techniques are practical for a small number of analyses, but would be too time consuming for the range of analyses in this study. Third, non-participation was random. Students who were absent from the class in which the questionnaire was administered became non-participants for that questionnaire. Moreover, participation rates for students who received a questionnaire through campus mail were much lower (around 60%) than those who completed a questionnaire in class (around 90%).

Are students who completed fewer questionnaires different than their counterparts who participated more often in the study? Generally speaking, student characteristics

were not related to level of participation in the study. Table 4 displays characteristics for participants based on their level of participation in the study. Roughly half completed 7 or 8 questionnaires (high participation) and the remainder completed 0 through 6 questionnaires (low participation). Chi-square tests of differences in proportions revealed no significant differences between high and low participants in terms of specialty, sex, or Career Changer status. Stream 2 students were less likely to be classified as high participation (X^2 (1, n = 235) = 7.27, $p < .05$).

Methods of Data Collection

Questionnaire Data

The study's design called for the completion of eight questionnaires over the course of students' first semester and a half at the CIA. The first questionnaire was administered on the first day of orientation. The other questionnaires are named according to the block and week during the block when they were administered: B3, B5, C3, D3, E3, F2 and G2. Questionnaires B3 and B5 were administered in Gastronomy classes. Questionnaires C3, D3, and E3 were administered in writing classes. Questionnaires F2 and G3 were administered to Culinary students in their Interpersonal Communications class. The F2 questionnaire was administered to Bakers in their Supervisory Development class and the G2 questionnaire in Pastry Class.

Students who were exempted from taking writing (59 Culinary and 3 Baking students) or Interpersonal Communications (22 Culinary students) because of previous college credit received the questionnaires though CIA campus mail and were asked to mail completed questionnaires back in a postage paid envelope sent to the CUNY Graduate Center.

Although the eight questionnaires contained the primary measures for the study and are the basis for all quantitative analysis, data also were collected through additional methods in order to test the study's hypotheses, provide anecdotal corroboration of the study's empirical findings, and investigate individual and group processes that would otherwise be difficult to assess in a questionnaire format.

Student Records

The Registrar's office provided access to student applications, class rosters, and grade rosters. (Permission for obtaining these data was obtained from participants during the consent process.) Demographic information obtained from the application included sex, date of birth, nationality, first language, and race/ethnicity. Educational attainment information included the student's high school rank, high school average, whether or not the student had attended college, and any higher education degrees earned by the student. Class rosters and grade rosters were used to verify the membership of stream and kitchen assignments. Attendance in kitchen classes during *D, E, & F block* as well as grades were recorded.

Kitchen Class Team Structure

Information about variations in the team and task structures of kitchen classes in *D, E* and *F blocks* were collected through interviews with chef instructors. They will be described when relevant to a particular statistical analysis.

Observational Data

The Principal Investigator was routinely present on the CIA campus over the course of the entire study (January 3, 2002 to June 19, 2002). Two types of observational

data were collected: public observations and classroom observation of participant interaction.

Public observation refers to those informal observations that did not require special arrangements with CIA administrators or faculty. Observation of student interaction occurred regularly in public settings (e.g., catching a smoke outside during break), the CIA's public restaurants and student dining rooms, library, hallways, grounds, residential halls, orientation, celebrations, and special lectures.

Observation in skills classes provided important data regarding student interactions. After obtaining permission from the chef instructor, the Principal Investigator would attend a skills class for several hours or for the entire six and a half-hour class session. Skills classes were taught in the school's kitchens and included lectures, demonstrations, food production, a meal break, and kitchen clean up. The Principal Investigator would float throughout the class, conversing with students about their activities, when students appeared open to conversations. The Principal Investigator often accompanied students on lunch and smoking breaks. Although it appeared that students never forgot about the Principal Investigator's presence, they seemed to acclimate after a few days of observation. In fact, the Principal Investigator received the warmest receptions when administering questionnaires to groups he had observed in the kitchen for several days. Students in these groups were also more likely volunteer contact information for future interviews and to invite the Principal Investigator to social events off campus.

Interview Data

Data obtained through conversation ranged from scheduled interviews with students to spontaneous hallway conversations with CIA deans and other administrators. Qualitative data obtained through these sources complemented many of the study's quantitative findings and also provided an insight into group processes not obtainable through survey instruments.

Student Interviews. Interviews with participants occurred throughout the study's duration. Participants were approached by the Principal Investigator, already known to them through questionnaire administrations and observations. Student interviews were generally unstructured and lasted about an hour. Common topics included: how students got along with other students, friendships, instructors, rewards and stressors at the CIA, and the student's history prior to entering the school. Most interviews were recorded on audiotape. A total of 15 such interviews were conducted: eight interviews with male students and seven with female students; 13 interviews with Culinary and two with Baking students, and, among these, three interviews with Career Changers. These interviews were used to confirm findings that emerged from the quantitative data in the study and were not themselves subjected to statistical analysis.

Informal Conversations with Faculty and Administrators. Interaction with CIA faculty was essential to the conduct of the study. Seven out of eight of the study's questionnaires were administered in a class, requiring prior notification and coordination with each instructor. Brief conversations with faculty often took place during classroom administration and follow-up discussions were arranged to obtain data regarding their impressions of student interaction as well as the character of specific student groups.

Informal Conversations with Students. Informal conversations with students were an inevitable part of the study. As early as the first day of orientation, students engaged in spontaneous conversations with the Principal Investigator. Students regularly greeted the Principal Investigator when encountering him around the CIA campus. Activities such as administering questionnaires in class or observation in the teaching kitchen were associated with a continuous stream of dialogue with students, just as often initiated by participants as by the Principal Investigator. Topics included the study, a particular instructor, chef instructors, other students, or the school in general.

Informal Conversations with Administration. Because most classes are taught in Roth Hall, which houses administrative offices as well as classrooms, teaching kitchens, and faculty and student dining rooms, spontaneous interactions with CIA faculty and administration was part of the normal routine of the Principal Investigator's day on campus. Through hallway conservations, sharing a table at lunch, cigarette breaks, or simply saying hello while walking across campus, faculty and administrators shared anecdotes about students, groups, and reflections upon the study's progress and findings.

Measures

The majority of measures were obtained through the eight questionnaires administered over the course of the students' first semester and a half at the CIA. The orientation questionnaire provided baseline measures of attitudes toward the study's three ingroup-outgroup distinctions (male/female, Culinary/Baking student, and First Career/Career Changer), the participant's aspirations as a chef, friendships with students already enrolled at the CIA, stress, and self-identification as "first career chef" or "career changer chef." Six questionnaires were administered from the third week of the student's

first semester through the fourth week of the second semester. To minimize questionnaire length, each questionnaire consisted of a set of core questions (stress, positive/negative events, satisfaction with the school) and additional modules (Status Equality, Cooperation, Competition, Conflict, Group Cohesion, Team Cohesion, Personal Friendship Network, Systematic Group Network) that rotated through the study. A description of question modules and their order of administration appears in Figure 5. The study questionnaires appear in order in Appendices C through J.

The measures are grouped according to the components described in the study's theoretical model (Figure 1). The three ingroup-outgroup distinctions were: (1) male or female students; (2) Culinary or Baking students, and (3) First Career or Career Changer students. In the orientation and G2 questionnaires, each student answered attitude items about four combinations of the first two dimensions (e.g., male Culinary students) as well as First Career and Career Changer students.

Social Contact

Data used to derive measures of social contact were provided by the Registrar and included stream assignments, group assignments, class rosters, and demographic characteristics of participants. Team assignments were collected from each chef instructor teaching a *D, E* or *F block* kitchen class that utilized a standing team structure. Derivation of specific contact variables will be discussed at the time they appear in statistical analyses.

Social Context Properties

Dimensions of social context included status equality, cooperation, competition, conflict, and group cohesion. Baseline measures were collected during *B block* (i.e., four

to seven weeks *prior* to the beginning of kitchen classes). Social context measures were included again during *D* or *E block* (six to nine weeks *after* students began kitchen classes). Unless otherwise noted, each scale was computed from the mean of its component items. The mean, variance, range, and internal consistency reliability of each scale are presented in Table 5.

Status Equality. Equal status was measured by a nine-item scale that tapped perceptions that students were treated as equals by the CIA administration, faculty, and by each other. Seven items were developed for the study and two were adopted from Green, Adams, and Turner (1988). It included items such as: students are in the same boat; instructors favor some students (reverse coded); students have equal opportunities; and students do not treat each other equally (reverse coded). Each item consisted of a statement to which participants responded on a 4-point Likert type scale (1 = 'Completely disagree,' 4 = 'Completely agree').

Cooperation. Cooperation among chef students was measured with four items. Items tapped perceptions that students cooperated with each other in class: students work together, students enjoy helping each other, and students prefer group projects. Participants responded using a 4-point Likert-type scale (1 = 'Completely disagree,' 4 = 'Completely agree').

The scale was developed from three items adopted from the Cooperation subscale of the Classroom Life Instrument (Johnson & Johnson, 1983; Johnson, Johnson, & Anderson, 1983), one item from the Classroom Environment Scale (Moos & Trickett, 1987), and three items developed for the study. Examination of the eight-item scale's internal consistency suggested weak reliability (.52 for the B5 and .31 for the D3

questionnaires) prompting a Principal Components Analysis (PCA) of the scale items. Using the criterion of retaining factors with eigenvalues > 1, a PCA with oblique rotation revealed different factor structures for the B5 and D3 questionnaire data. The four items that loaded above .50 on the first factor in both the B5 and D3 data and were used to create the Cooperation scale.

Competition. Competition between chef students was measured with a five-item scale that tapped the perceptions that students competed against one another in classes and included items about students such as: try hard to get the best grade, will do almost anything to be the best, try to impress each other, and compete to see who can master a skill first. Participants responded to items using a 4-point Likert-type scale (0 = 'Completely disagree,' 4 = 'Completely agree').

This scale was developed from seven items: five items adopted from the Classroom Environment Scale (Moos & Trickett, 1987), one item from the University Residential Environment Scale (Moos, 1987) and one item developed for the study. The internal consistency reliability of the seven items indicated that the removal of two items would notably increase the scale's reliability. This occurred in both the B5 and D3 questionnaire data. These two items had wording opposite that of the other five items in the scale – agreement indicated that students were not competitive – which may have contributed to their relative lack of consistency with other scale items; some participants may not have clearly read the reversed cooperation items, contributing to item error.

Conflict. Eleven items describing conflict between group members were developed for the study from the responses of Stream 1 students' open-ended questions

("Are most students getting along? Without mentioning any names, describe any student conflicts you've witnessed in the past week or two?").[9]

In the first part of the conflict scale, participants indicated whether they had witnessed or been involved in 11 different types of conflict such as: power struggles between students, conflicts with the group leaders, and students not doing their share of the work. They were then asked "Was this [conflict] a problem for you?" to which they responded using a 5-point Likert-type scale (0 = 'No problem,' 5 = 'A serious problem'); this provided a measure of Experienced Group Conflict. Participants were then asked to rate the 11 items for whether it was a problem for their group; this provided a measure of Attributed Group Conflict. Because the Experienced Group Conflict and Attributed Group Conflict scales were strongly correlated ($r = .79$, $p < .01$), the mean of the two scales was utilized as the Conflict measure.

Group Cohesion. Cohesion among group members consisted of two subscales adopted from the Physical Activity Group Environment Questionnaire (Estabrooks & Carron, 1999). Group Task Cohesion consisted of five items tapping the group solidarity on kitchen class tasks such as: encouraging each other to get the most out of class, agreement about the importance of class, and taking the class seriously. Group Social Cohesion consisted of three items tapping social solidarity such as: members often socialize in class, socialize outside of class, and members would spend time together if class were cancelled. Participants responded to both scales on a 7-point Likert-type scale (1 = 'Completely disagree,' 7 = 'Completely agree').

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[9] Stream 1 students were asked the closed-ended version of the conflict questions in the next questionnaire.

Friendship Formation

Data regarding participants' friendships with other CIA students was collected at several points in time and utilized two techniques adopted from social network research: Personal Friendship Networks and Systematic Group Networks. Personal friendship networks consisted of up to eight CIA students who were friends of the participant whereas the systematic group network was constructed from the responses of all members of a kitchen group to describe the relationship structures within that group.

Personal Friendship Network data were collected in the B3, C3, and F2 questionnaires using an array format which adopted elements from Kadushin and associates (2000), Stackman and Pinder (1999), and Tracy and Whittkaer (1990). As shown in Appendices D, G, and I, the eight rows of the array represented up to eight friends; questions about each friend were presented in the array's columns. Participants were given the following instructions: "List up to 8 CIA students whom you consider friends. Listing each person by their initials helps to keep things straight. Friends are those individuals with whom you frequently or often interact for personal satisfaction and enjoyment."

Number of Friends by Nomination was calculated from the total number of friends listed in the first column plus any lines in which no initials were written but other questions about the friend were answered (up to a maximum of 8). The average friendship network size was 5.95, 5.89 and 6.46 friends in the B3, C3, and F2 questionnaires, respectively.

Participants also provided descriptive data about each friend: Specialty (whether they were in the Culinary or Baking program); Stream (whether they were in the same

stream); Sister Group (whether they were in the same sister group); and Sex. An additional item assessing whether the friend was in the same Group appeared in the C3 and F2 arrays. In the F2 questionnaire, an additional question asked whether the friend had been in the participant's first semester group.

The final rating in the Personal Friendship Network array measured Friendship Depth by Nomination. Participants responded to the question "Which best describes your relationship with this person?" on a 7-point Likert-type scale (1 = 'Casual acquaintance, 7 = 'Best friend'). Friendship depth scores were 4.21, 4.97, and 5.31 in the B3, C3, and F2 questionnaires, respectively.

Systematic Group Network data were collected in the C3, E3, and G2 questionnaires. In a systematic network, relationships between all members of a group are measured. Each participant is presented with the array listing all members of his or her group. For each group member listed, participants indicated "which best describes your relationship with this person" on a 7-point Likert-type scale (1 = 'Casual acquaintance, 7 = 'Best friend') with the additional response options of 'don't really know this person' and 'prefer to avoid this person.' This item was adopted from Labianca, Brass and Gray (1998).

Number of Kitchen Group Friendships was calculated using the relationship ratings for each group member. Exploratory analyses were conducted to determine the optimal cutpoint for establishing the presence of a friendship along the seven points of the relationship scale. Analyses revealed that using a depth rating of 3 or more to indicate friendship resulted in overly dense kitchen group networks which tended to obscure previously distinctive groupings. Using a cutpoint of 5 or greater yielded sparse,

fragmented social networks that rendered calculation of network properties, such as closeness centrality, impossible. Therefore, relationships with group members rated a '4' (scale's midpoint) or greater were considered friendships.

Intergroup Friendships with Kitchen Group Members consisted of group friendships with two outgroup distinctions within the kitchen group: male vs. female and first career vs. Career Changer student.

Intergroup Attitudes

The study examined attitudes toward six target groups of CIA students that were defined by three dimensions: gender (male-female), specialty (Culinary-Baking), and career changer status (First Career -Career Changer). Each participant answered a set of 13 identical questions for each of the six groups. Whether or not these groups are considered "ingroups" or "outgroups" in analyses depends upon the participant's group membership. Attitudes toward each group were measured twice, at Orientation and in the final questionnaire. Consistent with a tripartite approach to attitudes (Breckler, 1984; Crites, Fabrigar, & Petty, 1994; Eagly & Chaiken, 1998), perceptions included cognitive and affective components.

Positive Intergroup Affect and Negative Intergroup Affect were measured towards each of the study's six target groups.[10] Participants indicated their feelings – proud, enthusiastic, hopeful, bitter, hatred, and uneasy – toward each group on a 4-point scale ('very' to 'not at all'). These items were developed based upon the recommendations of Marcus, Neuman and MacKuen (2000) for measuring affect toward

[10] Perceptions toward first career students were not measured in the G2 questionnaire in order to reduce the length and repetitive nature of the questionnaire.

groups and political figures. Stream 1 participants who completed the orientation questionnaire were administered a different set of affect items. On the basis of weaker than expected intercorrelations, a new set of affect items was introduced for the Stream 2 orientation questionnaire and subsequent administrations of the intergroup affect scales. Consequently, the statistical power of the affect items was weaker than the group belief items.

Group Beliefs were measured by five statements about the study's target groups that were developed for the study. Participants responded to statements such as 'Culinary chef students have excellent technical skills' on a 5-point Likert-type scale (0 = 'Completely disagree,' 4 = 'Completely agree').

Seven scale items were originally developed: five positively coded and two negatively coded. Principal components analyses with oblique rotation revealed a two-factor structure that was consistent for each of the six target groups. The first factor consisted of each scale's five positively coded items and the two negatively coded items. Inspection of questionnaires suggested that some participants may not have noticed the reversed direction of the negatively coded items. Given that the negative coded items potentially had greater measurement error than the positively coded items, only the five positive items were used for the intergroup beliefs scale.

Description of Study Outgroups

This section describes three distinctions used to test the study's hypotheses regarding ingroups and outgroups: gender, specialty, and career changer status.

Gender

Overall, women were in the statistical minority, with male students (64%) outnumbering female students (36%; see Table 6). However, the gender distribution depended on specialty: female Culinary students were in the minority (30%) whereas female Baking students were in the majority (70%), (χ^2 (1, $N = 236$) = 19.46, $p < .01$). The proportion of female Culinary students in 12 first semester groups ranged from 6% to 56%; the proportion of female students in the two Baking groups ranged from 65% to 75%.

Specialty

Roughly one sixth (14%) of the study's population were Baking students. As noted above, Baking students were more likely to be female. Although the average age of Culinary and Baking students were not significantly different, the distribution of ages *within* specialty varied. More Baking students (73%) were of traditional college age (18-21) than were Culinary students (47%), (χ^2 (2, $N = 236$) = 9.85, $p < .01$).

Career Changers

"Career Changer" refers to students who possess substantive work experience *outside* of the food industry with little food industry experience. Career Changer status was defined as a student age 28 or older who was rated as having low food industry experience prior to entering the CIA. Twenty-two students (9%) were classified as career changers, 18 in Culinary and 5 in Baking. Less than one out of ten (8%) of Culinary students were career changers and roughly 15% of Baking students were career changers, although this difference was not statistically significant. The proportion of Career

Changer students in 12 first semester Culinary groups varied from 0% to 25%; the proportion of Career Changer students in the two Baking groups were 12% and 18%.

CHAPTER THREE: RESULTS

This chapter is organized into four major sections. The first section reports the study's findings regarding the basic social contact model: the effects of intergroup contact on attitude change. The proposed theoretical model that intergroup friendship formation mediates the relationship between contact and attitude change (shown in Figure 3), is then tested. The second section explores the divergent contact effects on attitudes toward female students and Career Changer students. The third section examines the relationship between intergroup contact and intergroup friendships. The final section further explores the relationship between intergroup contact and friendship by testing a moderational model: whether contact effects on friendship formation are conditioned by the climate in which the contact occurred.

Multilevel Modeling of the Study's Data

To accommodate the hierarchical nature of the study's data (i.e., participants nested within kitchen groups) multilevel modeling techniques were employed to accurately measure the simultaneous influence of individual- and group-level variables. Using conventional statistical methods with this data set would present the "unit of analysis" problem, where researchers with multi-level data must choose either the individual level or the group level for conducting analysis. An individual-level analysis is problematic because it ignores the clustering of individuals within group contexts. Members of a kitchen group share common influences of chef instructor, group composition, and potentially, social climate. This "clustering" of participants in kitchen groups results in a lack of independence among individuals that is typically overlooked

by individual-level statistical analyses. The result can be an underestimation of standard errors, which in turn will alter confidence intervals and the results of significance tests (Goldstein, 1995). Alternatively, analysis at the group level exclusively would eliminate all within-group variation, which can falsely magnify the relationships between aggregated group-level variables such as group composition (Bryk & Raudenbush, 1992; Snijders & Bosker, 1999). The latter situation can risk the "ecological fallacy" in which group-level analyses are inappropriately used to make inferences about individuals (Robinson, 1950; Susser, 1994).

A family of statistical techniques known as multilevel models or hierarchical linear models (HLM) addresses these challenges of nested data (Bryk & Raudenbush, 1992; Goldstein, 1995; Snijders & Bosker, 1999. HML permits the simultaneous modeling of multiple levels and examination of how variables at one level (i.e., kitchen group) affect relations occurring at another (i.e., individual). The advantages of using multilevel techniques in this study include the ability to: 1) measure how intergroup contact – measured at the group level – predicts attitude change at the individual level; 2) measure how variables such as composition and social climate vary among kitchen groups; 3) gauge how much of the variation in social climates can be attributed to group demographic composition; and 4) and measure how much these group-level social climate influences friendship formation both directly and through a moderational relationship.

Intergroup Contact and Attitude Change

This section examines influence of contact with outgroup members on short-term attitude change toward the study's three outgroups: female students, Baking students, and

Career Changer status. Before examining change, it is important to document whether ingroup members held less positive attitudes toward their outgroup peers upon arrival at the CIA. Three attitude components were examined: positive beliefs, positive feelings, and negative feelings.

Table 7 shows the mean attitude ratings regarding student ingroups and outgroups at Orientation. Differences in attitudes toward a student's ingroup and outgroup were tested using a t-test paired samples test.[11] Male students held more positive beliefs about male chef students ($M = 2.73$, $SD = .70$) than female students ($M = 2.60$, $SD = .77$), $t(101) = -2.00$, $p < .05$. However, males' positive and negative feelings toward female chef students did not differ from those toward male chef students. Culinary students' attitudes toward Baking students were not significantly different than toward their own specialty. There were also no differences between First Career students' attitudes toward Career Changers and their ingroup. Thus, there was only minimal evidence of an ingroup bias at orientation: out of nine analyses only one was significant.

Overall Change in Attitudes toward Outgroups

Attitude change over four months was tested using a difference score (*G block* score – Orientation score) in a single sample t-test. Table 8 shows the amount of change in ingroup/outgroup attitudes among male and female students, Culinary and Baking students, and Career Changer students. With regard to the majority groups, there were no significant changes in gender ingroup/outgroup attitudes among male students over the

[11] Attitudes toward male and female chef students were based on attitude items *within the* participant's specialty. For example, the dependent variables for male Culinary students were attitudes toward male Culinary students and female Culinary students. Attitudes toward student specialty were collapsed across gender.

course of the study. Culinary students reported less positive beliefs about Baking students over time ($M = -.27$, $SE = .09$, $p < .01$), but Culinary students' feelings (positive or negative) toward Baking students did not change over time. By *G block*, First Career students' beliefs about Career Changers were less positive ($M = -.32$, $SE = .08$, $p < .01$); but there was not change in First Careers' feelings (positive or negative) toward Career Changers. There was no significant change in majority group *ingroup* perceptions for either males or Culinarians (perceptions toward First Career students were not measured at *G block*). In sum, change in intergroup perceptions overall were limited to the majority group members. Both Culinary students' beliefs about Baking students and First Career students' beliefs about Career Changer students became more negative. However, male perceptions of female students did not show short-term change over the study overall.

Test of Intergroup Friendship as Mediator

I next tested the mediational model shown in Figure 3. Intergroup contact in a student's kitchen group was hypothesized to affect intergroup attitudes through the development of intergroup friendships. Four conditions are required to claim that mediation has occurred (Baron & Kenny, 1986; Schiaffiano & Revenson, 1992); these conditions are illustrated in Figure 6 using female students as the outgroup. First, there should be a statistically significant relationship between the predictor variable (intergroup contact) and the outcome variable (intergroup attitudes; path B). Second, the predictor (intergroup contact) should be related to the potential mediator (intergroup friendships; path A). Third, controlling for the predictor (intergroup contact), there should be a significant relationship between the mediator (intergroup friendships) and the outcome

(intergroup attitudes; path C). Fourth, controlling for the moderator (intergroup friendships) should significantly reduce the strength of the relationship between contact and attitude change (path B). This mediational model was tested, in turn, for the study's three outgroups.

Males Students' Attitude Change toward Female Students

For male students, intergroup contact was operationalized as the number of female students in the participant's first semester kitchen group. At the time of *G block* when the measurement was taken, each student had spent roughly nine weeks in classes with his or her first semester group and had recently started their second semester. The number of female students in each group was based on class roster information provided by the CIA. To recap, using participants' ratings of their relationship with each student in their first semester kitchen group, the total number of female friendships was calculated and summed for each participant.

Multilevel modeling was employed to test the effects of group-level contact on individual-level attitude change. The notation used in describing multilevel models herein is adopted from Bryk and Raudenbush (1992). Level 1 consisted of participant data. The equation was

$$y_{ij} = \pi_{0j} + e_{ij} \qquad (1)$$

where y_{ij} represents individual attitude change, π_{0j} represents the mean attitude change within the participant's kitchen group, and e_{ij} represents an individual-level residual term. Level 2 data were measured at the level of the participant's first semester kitchen group. The equation was

$$\pi_{0j} = \beta_{00} + \beta_{01}\text{CONTACT} + u_{0j} \qquad (2)$$

where β_{00} represents the mean attitude change across all participants if CONTACT = 0 for that group, β_{01} represents the regression weight for intergroup contact, and u_{0j} represents a group-level residual term. Combining the models for each level, the resulting equation for testing contact effects was

$$y_{ij} = \beta_{00} + \beta_{01}\text{CONTACT} + e_{ij} + u_{0j}. \quad (3)$$

To test intergroup friendships as a mediator, two terms were added at level 1 yielding the following equation:

$$y_{ij} = \beta_{00} + \beta_{01}\text{CONTACT} + \beta_{10}\text{FRIENDSHIPS} + \beta_{20}\text{CONTACT x FRIENDSHIPS} + e_{ij} + u_{0j} \quad (4)$$

where β_{10} is the regression weight for intergroup friendships and β_{20} represents the regression weight for the interaction between contact and friendships.

Effect sizes were calculated for all multilevel analyses. Standard OLS multiple regressions yield multiple correlation coefficients that can be easily converted to a statistic representing the amount of variance explained in the model (R^2); an effect size can then be estimated based on the amount of variance explained by particular predictors (Cohen, 1992). With multilevel models, calculation of a similar multiple correlation coefficient is problematic; however, an analogous index can be estimated from the proportional reduction in residual variance at each level of a model (Snijders & Bosker, 1999). In this study, the major analytic interest concerned the accuracy of predicting individual-level outcomes, thus effect sizes (ES) will be estimated using the following formula specified by Snijders and Bosker for level 1:

$$\text{ES} = 1 - \frac{\text{var}(\sigma_2 + \tau_2)}{\text{var}(\sigma_1 + \tau_1)} \quad (5)$$

where $\text{var}(\sigma_1 + \tau_1)$ is the total residual variance (level 1 and level 2) in the initial model and $\text{var}(\sigma_2 + \tau_2)$ is the total residual variance in the augmented model. The ES measure can be viewed as a proxy for the f^2 statistic and interpreted similarly: ES = .02 is a *small effect;* ES = .15 is a *medium effect*, and ES = .35 is a *large effect* (Cohen, 1992).

The top panel of Table 9 shows the statistical tests for the first condition of mediation: a relationship between intergroup contact and attitude change. There was a significant positive relationship between contact and attitude change: the greater the number of female students in a male student's first semester kitchen group, the greater the change in positive beliefs about female chef students within his specialty (b = .08, SE = .03, $p < .05$). However, contact did *not* predict changes in males' feelings (positive or negative) toward female students. The first condition for mediation was thus confirmed for one attitude outcome: Greater contact improves positive beliefs over time, but does not change positive or negative affect toward female chef students. Thus, the mediational model can continue to be tested with only one outcome: change in beliefs toward female students.

The middle panel of Table 9 shows tests of the second condition for mediation: a significant relationship between the predictor (intergroup contact) and intergroup friendship (the potential mediator). The number of friendships a male formed with female students in his group was strongly and positively predicted by the number of females in the group (b = .57, $\underline{SE}$ = .07, $\underline{p} < .01$). Thus, the second condition of mediation was confirmed for male students.

The bottom panel of Table 9 displays tests of the third condition for mediation, namely that the potential mediator predicts the outcome variable *after controlling for the*

predictor. Both degree of intergroup contact and number of intergroup friendships were entered as predictors of attitude change in a multilevel regression model. There was no significant relationship between friendships with female students within a kitchen group and attitude change (in positive beliefs), controlling for the amount of intergroup contact. Thus, the third condition of mediation was not supported by the data.

To summarize, intergroup contact within the first semester kitchen group was related to increased positive beliefs about female chef students, but did not change positive or negative affect toward them. The number of females in the group influenced intergroup friendships within the kitchen group, but friendship formation did not mediate this relationship.

Culinary Students' Attitude Change toward Bakers

Because Culinary and Baking students did not take kitchen classes together, kitchen group composition could not be used as a measure of intergroup contact. Instead, measures of cross-specialty contact were based on the composition of two classes taken by both Culinary and Baking students. All students in an entering stream took Gastronomy class in *B block.* One measure of intergroup contact was a dichotomous variable with '1' assigned to Culinary students who took Gastronomy with Baking students and '0' assigned to participants who took Gastronomy with only other Culinary students. Most students also took Writing class, which lasted the length of the first semester. A second measure of intergroup contact was a dichotomous variable with '1' assigned to Culinary students who took the Writing class with Baking students and a '0' assigned to participants who took Writing classes with only other Culinary students. Students who used transfer credit to opt out of their first semester Writing class were

assigned a '0' value. Culinary students' friendships with Baking students were measured by a friendship nomination technique at *F block*. Such intergroup friendships were rare: only one out of five (22%) Culinary students reported at least one friendship with Baking students. Given its relatively low incidence, a dichotomous variable was created (Baking student friendship/no friendship).

The top panel of Table 10 shows the test of the first condition for mediation. There were no significant relationships between intergroup contact and attitude change. The middle panel shows that contact within the Gastronomy class did not predict the formation of Culinary students' intergroup friendships with Bakers; however, contact in Writing classes did positively predict friendship formation ($b = .52$, $SE = .23$, $p < .05$). As there were no significant relationships between the predictor and dependent variable, the mediational model cannot be tested further.

The hypothesized mediational model treated all intergroup contact (with Baking students) as equivalent, it does not differentiate between *which* groups of Baking students a Culinary student experienced contact with. Both questionnaire data indicated that Baking Groups A and D were considerably different: Group A was cohesive with relatively little conflict or competition whereas Group D was less cohesive and often in conflict. To determine if these differences in Baking kitchen group climate could influence contact effects, the mediational model was recomputed with intergroup contact treated as two dichotomous variables that were entered as a set: contact in Gastronomy class with either Group A Bakers or Group D Bakers. The Gastronomy class intergroup contact measure was chosen as Gastronomy classes were larger than Writing classes and would have greater statistical power. With this measure of intergroup contact, the first

condition of mediation was confirmed: Culinary students who had contact with Group D Bakers showed a decline in positive beliefs about Baking students ($b = -.47, p < .05$) compared to those with no Baking student contact; in contrast, there was no significant contact effects associated with Group A (data not shown). A test of the second condition of mediation showed no relationship between the predictor and the mediation, thus no further conditions of the mediational model were tested. Although not predicted by the theoretical model, it appears that contact with students in kitchen groups with negative climates colored beliefs about Baking students in general.

First Career Student Attitude Change

The last outgroup to be examined was Career Changers. The measure of intergroup contact was based on the number of Career Changer students in the First Career student's first semester kitchen group. Friendship with Career Changers was based upon group roster data collected at *E block.*

The top panel of Table 11 shows the relationship between First Career students' intergroup contact with Career Changers and the three attitude change measures. Contrary to the theoretical model, greater contact with Career Changers led to *less* positive beliefs about them ($b = -.15$, $SE = .07, p < .05$). Intergroup contact was unrelated to changes in positive or negative feelings. Although a mediational model of attitude change was not supported, there were positive effects of contact on outgroup friendships formation: The number of Career Changers in a First Career student's kitchen group was associated with more intergroup friendships ($b = .48$, $SE = .08, p < .01$).

The mediational model thus was not supported for the Career Changer outgroup. Divergent effects of intergroup contact were found: greater contact lead to *less positive*

beliefs about Career Changers as well as a *greater number* of intergroup friendships with Career Changers.

A series of post-hoc analyses were conducted to determine whether there were direct effects of intergroup friendship formation on attitude change. Given the strong relationships between intergroup contact and friendship formation, it is possible that including contact in the regression model may have attenuated the independent effects of friendship formation. Table 12 shows the results of a multiple regression with intergroup friendships predicting attitude change. Only one relationship out of nine was significant: Cross-specialty friendships predicted a significant reduction in Culinary students' negative feelings toward Bakers, $b = -.32$, $SE = .13$, $p < .05$.

In sum, the mediational model was not supported for any of the study's three outgroups. There was, however, a consistent relationship across all three outgroups between intergroup contact and intergroup friendships: Greater contact predicted a greater number of intergroup friendships. The relationship between intergroup contact and attitude change was attitude change was only weakly supported. Moreover, findings regarding the effects of intergroup contact on attitude change diverged for two of the outgroups: Increased contact lead to more positive beliefs about female students by male students but more negative beliefs about Career Changers by First Career Students. A number of post-hoc hypotheses were tested in order to understand the differences in the direction of contact effects for gender vs. Career Changer outgroup status.

Differences in Individual Performance

One explanation for the divergent differences was that they reflected differences in performance in skills classes (see Table 13). Neither prior experience nor grades in

skills classes explained the divergent pattern of contact effects found for attitudes toward female students and Career Changers. Only two gender differences in performance were found: 1) Culinary males had higher prior experience scores than Culinary females; and 2) Culinary males earned higher grades than females in *F block*.

Although by definition Career Changers are older and less experienced, they did not differ from First Careers in grades received in kitchen skills classes. Nor are older students in general less experienced than younger students: Students aged 22 through 27 have the most prior experience; students 21 and younger and students 28 and older had equivalent prior experience. Thus, the divergent pattern of contact findings did not reflect actual differences that emerged in skills kitchen classes during *D* or *E blocks*.

Position Within the Social Relations of the Kitchen Group

Another explanation was that females and Career Changers might not have been equally connected with their kitchen group, that is, were there differences in connectedness to other group members?[12] This hypothesis was tested using a social network analysis technique. Using the reported relationships between kitchen group members at *E block*, a complete sociogram for three kitchen groups could be constructed

Figures 7 through 12 show the social network of three kitchen groups (one Baking and two Culinary). Each point represents a student within the kitchen group; a line between points indicates a friendship between those group members. Friendships that were not symmetric are not counted as a relationship. Figure 7 shows the social structure of a Baking group A. Females (in red) are in the statistical majority and distributed

[12] Because Culinary and Baking students do not take kitchen skills classes within the same group, they were excluded from this analysis.

through the group. Figures 9 and 11 show two Culinary groups; in both cases, female chefs are in the statistical minority but distributed throughout the group. Figures 10 and 12 show the relative positions of Career Changers (in red) in the same groups: Career Changers are consistently on the periphery of their groups. Career Changer students appeared consistently in the periphery of the three kitchen groups, suggesting their isolation from the group.

Closeness centrality provides a quantitative measure of the relative position of members relative to the center of the group (Everett & Borgatti, 1999; Freeman, 1979). Closeness centrality scores were estimated for study participants who were members of the four kitchen groups with complete network data. Table 14 shows these scores among the study's outgroup distinctions; higher scores indicate greater centrality. There were no significant differences in group location based on participant's gender, specialty, or age. However, Career Changers had significantly lower centrality scores ($M = 73.2$) than First Career students ($M = 84.4$), confirming that Changers were more likely to occupy the social periphery of their kitchen group.

Female Students Fit In; Career Changers Do Not

Yet another post-hoc explanation for the difference between contact effects concerned stereotypes among students at the CIA: perhaps negative stereotypes about Career Changers were stronger than toward female students. Table 15 presents data indicating what types of CIA students didn't integrate well. During *F block*, participants answered in an open-ended format: "Based on what you have observed over the past few months, what kind of students have the hardest time fitting in at the CIA?" Most frequently mentioned were "Shy students" by 17% of the sample, introverted students

who do not form friendships and have trouble fitting into their kitchen group. "Older students" were the second most frequently mentioned category (16%). Comments about older students alluded to problems in performance due to physical demands of the classes, the perception that older students were know-it-alls, and the fact that most students were 18 to 21. "International students" were mentioned by 10% of the sample. Comments indicated that international students experience problems due to language difficulties and a lack of familiarity with the "American culture" in the kitchen.

These characteristics reflect, in part, the dynamics of individual kitchen groups. For example, Culinary group A had one older, Career Changer student who was the source of considerable frustration to some in the group. She interacted with the chef instructors very collegially, asked many questions, and tended to ignore her peers in the group. Both this individual and another younger student – who was also annoying to several other students -- were of international origin. While Culinary group B also contained one Career Changer; 'older' was not mentioned by those students as contributing to not fitting in, probably because she consistently worked hard and took responsibility for delegating communal tasks (e.g., keeping floors clean) that might be ignored by others. On the other hand, a First Career student in Culinary group B had considerable difficulty learning the basic skills in the kitchen and performing them at an acceptable pace; this group thus mentions 'slow'. Baking group B contained one First Career student who was extremely shy, not joining in family dinners (where the group act together), rarely talking in the kitchen, and generally acting very passive during class.

These perceptions were not "missed" by the recipients of these descriptions: During an interview with the Principal Investigator, one Career Changer who dropped out

of the CIA at *F block* reflected that she felt a bit behind in her first two skills classes and by Skills III – which produced food for family meals – her speed was interfering with her table team's ability to get food out on time and she experienced increasing abuse from other table team members.

"Career Changer" as a Safe Label for "Ageism"

As a social category, "Career Changer" has a certain amount of validity in the CIA context. A second career chef is a concept frequently used in the food industry (e.g., Bourdain, 2000; Time Out New York, 2004). The term is employed by the administrators, faculty, and students to refer to older, less experienced students. In fact, while the current study was being conducted, the CIA sponsored a new support group targeted to "Career Changers." Despite the label's consensual definition is it possible that students used "Career Changer" to refer to any older student? If so, could contact with *any older student* result in attitude change toward the Career Changers? Career Changers were originally defined as students 28 or older who had minimal prior experience in the food industry upon entering the CIA. To test this hypothesis, I created a category of *Older Student* that included all students age *28* or older (28-53). Table 16 shows change in positive beliefs toward Career Changer students as a result of social contact with two targets: Career Changers vs. Older Students. Intergroup contact was measured as the *total* number of students in the kitchen group age 28 or older. To explore whether negative contact effects differed by the *observer's* age, two subsets of First Career students were subsequently examined: aged 18 to 21 and aged 22 to 27. The negative contact effect is evident for both these age categories; it was significant stronger for students aged 22-27, but only marginally significant for those between 18 and 21.

These findings suggest that intergroup contact with *any* Older Students (who vary in prior experience) results in negative contact effects equal to that for Career Changers.

To summarize, four post-hoc hypotheses were tested to explain the divergent pattern of contact effects for gender vs. Career Changer outgroups that contact *increased* positive beliefs about female students over time but *decreased* beliefs about Career Changers. Empirical support for found for three of these hypotheses. Career Changer students were more likely than female students to occupy peripheral or 'outsider' positions in the informal social organization of their kitchen group. Although students listed Career Changers as a group that doesn't fit in at the CIA, female students were not mentioned. On the other hand, Females and Career Changers earned equivalent grades in their skills classes (compared to males and First Careers respectively). Finally, attitudes toward Career Changer appeared to have been affected by intergroup contact with *any older* students.

Influence of Contact on Intergroup Friendship Formation

This section examines the effects of intergroup contact on friendship formation in more detail. First, the effects of contact on *ingroup* and *intergroup* friendships are compared for two of the study's outgroups. Second, the importance of contact and accessibility to friendship formation in general is examined. Finally, the section explores potential differences between the *ingroup* and *intergroup* friendships in terms of number of friends and depth of friendship.

Ingroup vs. Intergroup Friendships

As described earlier, there was a strong and consistent relationship between intergroup contact and intergroup friendships. A series of tests were run to determine

whether contact within the kitchen group was more important to the formation of *intergroup* friendships than *ingroup* friendships. Tests were performed using a two-level multiple regression with number of friendships as a level one dependent variable and contact within the kitchen group as a level two predictor. The equations used to test the relationship between contact and friendship formation were identical to those employed to test the effect of contact on attitude change (equations 1, 2, and 3) with number of friendships as the dependent variable.

Table 17 displays the results for male students and First Career students. Because Culinarians and Bakers are in different kitchen groups, this could not be examined across specialties. The number of male students' friendships *within* and *across* gender was strongly influenced by the total number of males and total number of females within their kitchen group. Examinations of the effect sizes in Table 17 reveal that contact explained large effects for contact on *cross*-gender friendships (ES = .47-.49) and medium effects on *within*-gender friendships (ES = .19 - .21).

A similar pattern emerged for First Career friendships. The number of First Career students within a kitchen group accounted for medium to large effects on outgroup friendships with Career Changers (ES = .22 - .37) and low to medium effects on ingroup friendships with first Career students (ES = .09 - .10). Contact with both ingroup and outgroup members within the kitchen group was predictive of both *ingroup* and *intergroup* friendship formation.

Contact Outside of the Kitchen Group

Contact within the kitchen group clearly influences intergroup friendship formation. Membership in a kitchen group implied a certainty of contact: Daily rotating

task teams ensured that each student in a kitchen group had some degree of contact with all other kitchen group members during the course of the block. This leads to the question of whether other shared group membership characteristics (i.e., entering stream, sister group pairs) also were important to intergroup friendships. Do these contextual characteristics create an ingroup (albeit temporarily)?

Table 18 shows the percentage of friendships reported at *B, C,* and *F blocks* that were formed with peers within the same stream, Gastronomy class (sister group), and kitchen group. At *B block*, three-quarters (76%) of the friendships reported were friendships formed with members of the same entering stream. Nearly two-thirds (65%) of friendships were made with students in the same Gastronomy class. There are two Gastronomy class sections within each stream: one for all a.m. students and one for all p.m. students. An a.m. student rarely takes classes with a p.m. student. Thus, the CIA course sequence renders half of the peers in a student's entering stream less accessible and friendship formation is structured as a result.

The a.m./p.m. distinction remains important through *F block* (16 weeks into the course sequence). Two thirds of friendships reported at *C block* (68%) and at *F block* (68%) consist of peers from the same *B block* Gastronomy class, despite the fact that at the beginning of *C block*, the student's kitchen group becomes the most accessible source of social interaction. The importance of proximity to friendship formation is evident: Over half of friends reported at *C block* (58%) and at *F block* (57%) are in the student's kitchen group.

Are intergroup friendships more or less dependent on accessibility than ingroup friendships? Table 19 shows the proportion of gender and specialty ingroup/outgroup

(Culinarians and Bakers) friendships formed with Gastronomy classmates. The proportion of gender ingroup and outgroup friendships formed with Gastronomy classmates was equal. In contrast, specialty outgroup friendships were less likely to be formed with Gastronomy classmates, a pattern that remains stable across the three time periods. Proximity is a key determinant of who becomes friends and is particularly important to *intergroup* friendships.

Differences between Ingroup and Intergroup Friendships

While both ingroup and intergroup friendship formation were influenced by the composition of kitchen groups, sister groups, and entering cohorts, these relationships are much more pronounced for *intergroup* friendships. The next question addressed whether *intergroup* the number of friendships among CIA students tended toward homophily: friendships with *ingroup* members more than *intergroup* friendships, and whether intergroup friendships were less deep due to inherent dissimilarities in the intergroup friendship dyad.

Number of Friends

Friendship nomination data revealed that students reported an increasing number of friendships over the course of the study: *B block* ($M = 6.09$, $SD = 2.20$), *C block* ($M = 6.06$, $SD = 1.95$), and *F block* ($M = 6.59$, $SD = 1.89$). Tables 20-22 shows the results of a two-level analysis of the total number of reported friendships by gender, specialty, and Career Changer status. Multilevel analysis was employed for two reasons: 1) friendship data were nested (friends nested within student) and 2) participants missing one or two of the three friendship nomination data points could be retained in the sample. Level 1 consisted of friendship data collected at three time points. The level 1 equation was

$$y_{ij} = \pi_{0j} + \pi_{1j}\text{TIME} + e_{ij} \quad (5)$$

where y_{ij} represents number of friends, π_{0j} represents the mean number of friends at TIME = 0, and π_{1j} represents the regression weight for time. TIME was coded so that *B block* was 0, *C block* was 1, and *F block* was 2. The level 2 equations were

$$\pi_{0j} = \beta_{00} + \beta_{01}\text{SEX} + \beta_{02}\text{SEX x TIME} + u_{0j} \quad (6)$$

$$\pi_{1j} = \beta_{10} \quad (7)$$

where β_{00} is the average number of friends reported by male participants at TIME = 0, β_{01} is the difference in number of friends between male and female participants, and β_{02} is the difference in time effects between male and female participants. Combining the models for each level, the resulting equation was

$$y_{ij} = \beta_{00} + \beta_{01}\text{SEX} + \beta_{02}\text{SEX x TIME} + \beta_{10}\text{TIME} + e_{ij} + u_{0j}. \quad (8)$$

The first step for all three analyses shows the overall effect of time: students reported an increasing number of friends over the course of the study ($b = .25$, $SE = .08$, $p < .01$).

Gender Differences. In step 2 of Table 20, a term is introduced to test gender differences in the number of friendships, which was not significant. In step 3, a term representing the interaction of gender and time was included, which also was not significant. Thus, there were no differences between male and female students in the average number of friendships reported or the rate at which those friendships increased over time.

Specialty. Table 21 shows the findings for culinary specialty. The multilevel model employed was identical to equation 8, with specialty replacing gender. There were

no differences between Culinary and Baking students in the average number of friendships reported or the rate at which those friendships increased over time.

Career Changer status. A similar multilevel model was employed for Career Changers. Table 22 indicates that Career Changer students reported fewer friendships than did First Career students ($b = -.96$, $SE = .43$, $p < .05$). A non-significant interaction term in step 3 indicated that, although Career Changers reported fewer friendships, their rate of friendship formation did not differ from First Career students. Thus, the number of friendships formed by CIA students increased over the course of the study and this phenomenon did not differ by gender, culinary specialty, or career changer status. However, Career Changer students reported fewer friendships at each time point than did First Career students.

Number of Ingroup vs. Intergroup Friends

Our friendship networks tend to be homophilous; that is, we share many similarities with our friends in terms of age, gender, and race and ethnicity; we also tend to form friendships with those who share our values, attitudes, and preferred activities (Lazarsfeld & Merton, 1955). It was expected that the friendship networks of CIA students would share this tendency toward *ingroup* friendships. Two types of outgroup friendships were analyzed using the friendship nomination data: gender outgroups (male/female) and specialty outgroups (Culinary/Baking). Career changer status was not included in the friendship nomination format because of respondent burden: at the outset of the study, it was unclear whether "Career Changer" as a social category had widespread consensus.

Table 23 compares the incidence of *ingroup* and *intergroup* friendships based on gender. The number of gender ingroup (e.g., male-male) and gender outgroup (e.g., female-male) friendships can be found in column 2. At each time point, the number of gender ingroup friendships was greater than gender outgroup friendships. Columns 3 and 4 show gender-ingroup and gender-outgroup friendship for male and female students. Male students consistently report a greater number of gender ingroup friendships (male-male) than outgroup friendships (male-female). The number of gender ingroup and outgroup friendships reported by female students was equivalent.

Table 24 shows the results of a multilevel analysis employed to test differences in the rates of gender ingroup and outgroup friendship formation over time. A model identical to that in equation 8 was employed, with number of *ingroup* or *intergroup* friendships as dependent variables. The results of a model predicting the number of gender *ingroup* friendships are shown in the left column and the results of a model predicting gender *intergroup* friendships are shown in the right column. Step 1 shows that number of gender ingroup friendships increased over time ($b = .21$, $SE = .08$, $p < .01$). Step 2 shows that female students reported less gender ingroup friendships than did males ($b = -1.10$, $SE = .25$, $p < .01$). A non-significant interaction term indicates that the rate of gender ingroup friendship formation for females did not vary from males. The number of gender outgroup friendships did not change over time. Step 2 shows that female students reported significantly more gender outgroup friendships than did males ($b = 1.49$, $SE = .22$, $p < .01$). The lack of a significant interaction term indicates that the rate of outgroup friendship formation did not vary by gender. In sum, although the number of *ingroup* friendships increased over the course of the study, *intergroup*

friendships did show a similar increase. Female students were more likely to form gender *intergroup* friendships than male students.

Table 25 presents the mean number of ingroup and outgroup friendships by culinary specialty. The number of specialty ingroup and outgroup friendships appear to vary between Culinary and Baking students. This difference is tested in Table 26, which shows the results of multilevel models predicting specialty ingroup and outgroup friendships for Culinary and Baking students. Step 1 shows that specialty ingroup friendships increased over time ($b = .34$, $SE = .08$, $p < .01$) whereas specialty outgroup friendships slightly decreased ($b = -.10$, $SE = .04$, $p < .05$) over the same period. Baking students reported significantly less specialty ingroup friendships than did Culinary students, but the rate of friendship formation was the same (step 2). This is not surprising as there are far fewer Baking students at the CIA than Culinary students. Baking students reported significantly more specialty intergroup friendships than did Culinary students ($b = -1.10$, $SE = .25$, $p < .01$); however, a significant interaction term indicates the number of intergroup friendships declined over time compared with Culinary students ($b = -.35$, $SE = .12$, $p < .01$).

Depth of Friendships

I next examined whether ingroup friendships were deeper than outgroup friendships. Both friendship nomination measures provided a profile of participants' eight closest friends at the CIA. These data permitted a comparison of friendship depth based on the study's three outgroups. Both initial differences and changes over time in the friendship depth were analyzed using a two-step multilevel multiple regression. The equations employed for this analysis were identical to those in equation 8, with different

dependent variables. Step 1 in the regression included terms for time. Step 2 tested for initial differences in depth due to participant characteristics (i.e., gender, specialty, or career status). Step 3 tested added an interaction term for characteristics by time to test for differences in rates based on participant characteristics.

Step 1 indicated that the depth of the average friendship actually declined over the course of the study. Although there were no significant differences in friendship depth by gender (Table 27, step 2), a significant interaction termed indicated that friendship depth declined more slowly for female students. Although main effects were not significantly different between culinary specialties (Table 28, step 2) the interaction between specialty and time was significant. Examination of the unadjusted means revealed that Culinary students' friendships with other Culinary students become less deep over time whereas Baking students' friendships become deeper. Step 3 in Table 29 shows that the friendship depth reported by Career Changers declined significantly faster in than that of First Career students.

Influence of the Social Context on the Relationship Between Intergroup Contact and Intergroup Friendships

This section addresses structural aspects of the social context on intergroup friendship formation. Aspects of the social context that were assessed included equal status, cooperation, competition, conflict, task cohesion, and social cohesion. The social context is viewed as a moderator of the relationship between intergroup contact and friendship formation.

Before examining the moderational influences of kitchen group climate, it was necessary to establish that climate measures actually varied between kitchen groups.

Social climate is hypothesized to vary at the group level: that is, students' consensus regarding the social climate in their group would systematically vary between kitchen groups. This group variation would validate the use of social climate as a group-level predictor variable in the model shown in Figure 4.

Differences between kitchen groups were tested using a two-level variance components model with each social climate measure as the dependent variable. The variance components equation at level 1 was

$$y_{ij} = \pi_{0j} + e_{ij} \quad (9)$$

and at level 2 was

$$\pi_{0j} = \beta_{00} + u_{0j.} \quad (10)$$

Significant variation was indicated by the deviation in –2 Log Likelihood between the fit of a one level (individual) model with that of a two-level (individual and group) model (Snijders & Bosker, 1999). This procedure also yields an intraclass correlation which estimates the relative contribution of group-level variance to the total variance in the model.

Table 30 shows the variance components and interclass correlations for the study's social climate measures. Initial measures (*B block*) of Equality, Cooperation, and Competition did not significantly vary between kitchen groups. This is not surprising: in the first few weeks of the semester there were few occasions in which students spent time with their individual groups. By *D block*, four out of five of the climate measures show significant variation between kitchen groups. Twelve percent of the variation in Equality and 9% of the variation in Cooperation was associated with a student's kitchen group. There was no statistically significant group-level variation in Competition, suggesting

that students experience roughly the same level of competitiveness across the institution. The highest intraclass correlations were found for group cohesion (which averaged ratings for *D block* and *E block* to increase power): nearly a fifth of the variance in Social Cohesion and a sixth of the variance in Task Cohesion are attributable to the kitchen group.

Change in social climate from *B block* to *D block* was tested using a paired samples t-test (Table 31). There were significant decreases in levels of Equality ($t(137) = 7.07, p < .01$) and Cooperation ($t(130) = 2.67, p < .01$) between *B* and *D block,* and a marginally significant increase in Competition ($t(130) = -1.67, p < .10$). Follow-up analyses (not shown) indicated that the amount of change over time did not significantly vary across kitchen groups. As the most important unit of social organization moves from stream (the full entering cohort) to sister group to kitchen group, students begin to perceive status distinctions between one another and perceive increasing competition within the group.

Over the course of their experience from *B block* to *E block*, group-specific social climates emerged in terms of Equality, Cooperation, Cohesion and Conflict. Moreover, the levels of social climate changed. Across kitchen groups, students reported less Equality and Cooperation along with a slight increase in Competition.

Effects of Social Climate on Intergroup Friendship Formation.

Social climate measures collected during *D* and *E blocks* were used to test whether social context has direct effects on friendship formation and/or moderates the effects of intergroup contact on friendship formation. Each social climate measure was examined at both the group level (mean rating of climate within the kitchen group) and

individual appraisal of social climate (deviation of the participant's climate rating from the group mean). The direct effects of social climate were tested with a three-step, two-level multiple regression with social climate predicting the number of either gender or Career Changer intergroup friendships. (Tests of these relationships between Culinary and Baking students were not possible as kitchen groups were specialty-specific.)

The level 1 equation for the full model (step 3) was

$$y_{ij} = \pi_{0j} + \pi_{1j}\text{CLIMATE DEVIATION} + \pi_{2j}\text{CLIMATE DEVIATION x CONTACT} + e_{ij} \quad (11)$$

where y_{ij} represents the number of intergroup friendships, π_{0j} represents the mean number of friends within the participant's kitchen group for a participant with a CLIMATE DEVIATION score of 0, π_{1j} represents the regression weight for CLIMATE DEVIATION, and π_{2j} represents the regression weight for CLIMATE DEVIATION x CONTACT. The equations for level two were

$$\pi_{0j} = \beta_{00} + \beta_{01}\text{CONTACT} + \beta_{02}\text{GROUP CLIMATE} + \beta_{03}\text{GROUP CLIMATE x CONTACT} + u_{0j.} \quad (12)$$

$$\pi_{1j} = \beta_{10.} \quad (13)$$

$$\pi_{2j} = \beta_{02.} \quad (14)$$

where β_{00} represents the mean number of intergroup friendships in a kitchen group with CONTACT = 0 (no outgroup members) and GROUP CLIMATE = 0, β_{01} represents the regression weight for CONTACT, β_{02} represents the regression weight for GROUP CLIMATE, and β_{03} represents the regression weight for GROUP CLIMATE x CONTACT.

Table 32 shows that, among male students, outgroup friendships with female students were more likely in kitchen groups with greater task cohesion ($b = .63$, $SE = .18$, $p < .01$). No other social climate measure at the group level significantly predicted friendships with female students. At the individual deviation level, male students who perceived greater social cohesion in their group reported more female friendships ($b = .38$, $SE = .18$, $p < .05$). No other individual level ratings of social climate were significant. As noted earlier, the task cohesion provides a second measure of the level of cooperation within a kitchen group specific to common tasks; social cohesion refers to how much members enjoy the social aspects of being in their kitchen group.

Table 33 shows that First Career students were more likely to report intergroup friendships with Career Changers in kitchen groups with higher task cohesion ($b = .12$, $SE = .06$, $p < .05$). No other social climate measure at the group *or* individual level was predictive of friendships with Career Changers.

In sum, contexts with greater task cohesion were associated with a greater number of intergroup friendships. In addition, male students who perceived greater task cohesion *relative to others in their group* were more likely to form intergroup friendships with female students.

Moderation hypotheses, as shown in Figure 13, were tested next. The direction of the proposed moderation relationship is positive: in optimal social climate conditions (i.e., greater task cohesion, greater cooperation, less competition, less conflict, greater social cohesion, and greater status equality) the relationship between intergroup contact and friendship formation will be stronger. The hypothesized model was tested with two of the study's outgroups: male students' friendships with female students and First Career

students' friendships with Career Changer students. The effects of group social climate on friendships with Baking students were not examined as Culinary and Baking students took first semester kitchen skills classes separately.

The essential condition for establishing moderation is a significant effect for the predictor-moderator interaction term, which is represented in regression analyses as the product of the predictor (intergroup contact) and the moderator (group social climate) in the predicted direction (path C). There also may be significant individual associations between the predictors that make up the interactions and the outcomes, but these are not required for a determination of moderation.

Contact with Female Chef Students

Intergroup contact was again operationalized as the number of female students in the participant's first semester kitchen group. Outgroup friendships were based upon friendships reported through the group roster format at *E block.*

Moderation was tested in a three-step hierarchical regression with intergroup contact and the two potential moderators (group mean and individual deviation social climate scores) on step 1, an interaction term for group social climate (group contact x mean climate measure in group) on step 2, and an interaction term for individual deviation scores (group contact x individual deviation climate scores) on the last step. Given the study's theoretical emphasis on contextual properties at the group level, the interaction term for mean climate was entered before the individual deviation term. A significant decrease in the model's –2Log Likelihood based upon the inclusion of the interaction term in the model would indicate a significant moderational effect.

Table 34 shows the results of the tests of moderation for male students' outgroup friendships with female students. One out of six social climate measures at the group level significantly moderated the relationship between intergroup contact and friendship. However, the nature of the interaction effect was in the opposite direction of predictions: Male students in kitchen groups with *greater* competition were more likely to form intergroup friendships ($b = 16$, $SE = .06$, $p < .05$). There were three out of six significant interactions involving individual deviation measures of social climate. Consistent with the theoretical model, males who experienced a high level of cooperation *relative to others in their group* were more likely to form intergroup friendships ($b = .25$, $SE = .13$, $p < .05$). Likewise, males rating their group as having greater task cohesion ($b = .29$, $SE = .06$, $p < .01$) and social cohesion ($b = .17$, $SE = .06$, $p < .01$) *relative to their group members* were also more likely to form intergroup friendships.

Contact with Career Changer Students

Friendships with Career Changer students were tested among First Career students. As shown in Table 35, there were no moderational effects found for group-level social climate measures. One out of six interaction effects was found at the individual level: First Career students who rated their kitchen group as higher in task cohesion *compared with others in the group* reported a greater number of friendships with Career Changers ($b = .11$, $SE = .06$, $p < .05$). No other moderational relationships were confirmed.

In sum, the moderational model received modest support. Variations in *individual levels* of task cohesion moderated the effects of contact on intergroup friendships for both gender and Career Changer outgroups. Individual appraisals of two

other social climate measures – cooperation and social cohesion – were significant moderators for friendships with female students, but not for Career Changers. Only one group-level social climate measure – competition – was a significant moderator; however, the direction was opposite to prediction: males were more likely to form friendships with female students in groups with *higher* levels of competition.

Summary

Despite the highly structured curriculum at the CIA, significant differences between kitchen groups emerged between *B* and *E blocks*. These contextual differences had some consequences for the intergroup friendships formed within them. Kitchens with higher mean levels of task cohesion were contexts in which male students were more likely to form friendships with female students and in which First Career students were more likely to form friendships with Career Changers. Regardless of the kitchen climate, males who perceived greater social cohesion relative to others in their kitchen group were more likely to form gender *intergroup* friendships.

There was partial support for the moderational influence of context on the relationship between intergroup contact and friendship formation. Surprisingly, males were more likely to have female friends in kitchen groups with higher mean levels of competition. Consistent with predictions, individual appraisals of task cohesion, cooperation, and social cohesion were significant moderators of contact gender intergroup friendships. Likewise, First Career students who rated their kitchen group as more task cohesive than their fellow group members were more likely to form friendships with Career Changers.

CHAPTER FOUR: DISCUSSION

This study addressed several key questions about how social settings can shape the formation of intergroup friendships and the implications of this relationship for social contact effects. The theoretical model tested in the study (Figure 1) included both mediational and moderational hypotheses. First, intergroup contact was expected to lead to attitude change through the mediational influence of friendship formation. Second, the social climate of the group was proposed as a moderator of intergroup contact effects on friendship formation (moderation). These hypotheses were tested among three outgroups -- female students, Baking students, and Career Changers – and only partial support was found.

Intergroup contact led to the positive, theoretically predicted short-term change in male attitudes toward female chef students. Contrary to predictions, intergroup contact resulted in a *decrease* in First Career students' positive beliefs toward Career Changers. Across the three outgroups tested, variations in the social context of the different kitchen groups shaped gender and Career Changer intergroup friendship formation both directly and through a moderational relationship. Specifically, cooperative and cohesive group climates directly increased likelihood of friendship formation. In addition, the relationship of intergroup contact to friendship formation was stronger at more optimal levels of cooperative and cohesion. Contrary to predictions, the relationship between intergroup contact and attitude change was *not* mediated by intergroup friendship formation.

This chapter will discuss each of these findings in terms of potential explanations and theoretical implications. Additional sections will review the findings pertaining to Baking students as well as to outgroup in general as well as a diverging pattern between cognitive and affective measures of prejudice. A final section reviews the study's strengths and weaknesses.

Divergent Intergroup Contact Effects

The most interesting finding of the study was that when intergroup contact led to attitude change, the direction of this relationship was dependent on the target outgroup. As predicted, intergroup contact *increased* positive beliefs toward female chef students by male students. In contrast, intergroup contact resulted in *more negative* beliefs toward Career Changer students. The challenge of integrating these findings is that these differential social contact effects were found for the same students, in the same group climates, and at the same time.

Career Changer has validity as a meaningful category in the CIA context. However, there was great overlap between the categories of Career Changer and older student. Post-hoc analyses found that broadening the measure of intergroup contact with Career Changers to contact with "Older Students," operationalized as aged 28 and older, and repeating the analysis with this outgroup did not change the pattern of findings. In other words, greater contact with *any* older students, regardless of their prior experience or performance, led to more negative beliefs. Students appear to have drawn upon their experience with all older students to report their attitudes toward Career Changers. It is likely that negative attitudes toward Career Changers are proxies for ageist attitudes.

There are other plausible explanations for the divergent effects. In addition to

clarifying our understanding in this current study, these alternative explanations suggest directions for future research.

1. *Because of the low incidence of Career Changer students, contact with Career Changers intensified rather than minimized stereotypes.* Given that this study took advantage of naturally occurring outgroups that were also statistical minorities, there was no control over the proportion of outgroup members in any one kitchen group. Thus one difference between female students and Career Changer students concerned their numerical distinctiveness: The proportion of First Career to Career Changer students within a kitchen group was consistently higher than the proportion of male to female students.

Too low a proportion of outgroup members in a group can increase category salience, thus drawing greater scrutiny to those few outgroup members than ingroup members (McGuire et al., 1975; Vanman & Miller, 1993). When outgroup members occupy 15% or less of a group's composition, differences between social categories will tend to be exaggerated and stereotypes reinforced (Taylor & Fiske, 1978). Other researchers have reported that when outgroups exceed a proportion of 35%, outgroup members may become threatening to the statistical majority (Blalock, 1967; Blau, 1977; Tolbert et al., 1995). Using these rules of thumb, female students (who ranged from 6 % to 75% in the kitchen groups) were much more likely to constitute an optimal proportion within a kitchen group whereas Career Changers were consistently approaching token status (0% to 25% across kitchen groups).

Statistical minority status also shapes the expectations and experiences of outgroup members. Anticipation of token status in a group not only results in a more

stereotypical orientation to the group majority, but creates an expectation that one will be judged stereotypically in turn (Tolbert et al., 1995). Such status may be associated with increased self-focus and social isolation (Kanter, 1977; Pettigrew & Martin, 1987). Anticipation of being stereotyped also may lead outgroup members to behave in ways that become self-fulfilling prophecies (Snyder et al., 1977; Steele & Aronson, 1995).

2. *The divergent contact effects found in this study reflected true differences in performance between Career Changers and First Career students, as well as between female students and male students.* The change in attitudes toward female students and Career Changers did not reflect differences in either prior cooking experience as measured at orientation or grades earned in skills classes during the first semester. Male students had more prior experience than females and higher grades in *F block* skills classes, but men and women earned equivalent grades in *D* and *E block* skills classes.

Equivalent performance may not be sufficient to disconfirm negative expectations, however. In research conducted by Cook (1978, 1985), positive intergroup contact outcomes required outgroup members to perform at a level *equal to or even greater* than ingroup members. Coupled with the fact that Career Changers were a statistical minority and highly salient, just a few normal mistakes in the kitchen could have potentially resulted in (negative) stereotype confirmation and reinforcement.

3. *Stereotypes of Career Changers already existed among First Career students, but required confirmation through contact to be validated.* Consistent with the *Stereotypes as Hypotheses* model (Biernat, Crandall, Young, Kobrynowicz, & Halpin, 1998; Darley & Gross, 1983), First Career students may have held tentative negative stereotypes about Career Changers upon entering the CIA. Although there were no differences in ingroup

and outgroup perceptions based on career changer status at Orientation, these attitudes may not have been expressed at the beginning of the study because of social presentation concerns or a lack of direct experience with Career Changers. It may have been that subsequent, extensive contact with Career Changers in the kitchen group provided behavioral evidence to confirm these stereotypes.

4. *Differences in patterns of friendship formation and the resulting informal social network within the kitchen group account for differences in contact effects between female students and Career Changer students: Specifically, unlike female students, Career Changers may not have been seen as 'playing well with others' and team effort is a critical component of kitchen work.* Career Changers' friendships were distinctive from those of other students: they had fewer friendships initially; and this did not change over the course of the study. Career Changers rated the friendships that they did form as less deep than friendships formed by First Career students, a trend that also remained through the study. Career Changers and older students in general were more likely to have established friendships, romantic relationships, family, and co-workers and they were, in a sense, less in the market for new friendships made at the CIA. Career Changers also may have been more anxious in the classroom setting as members of a visible minority (Vanman & Miller, 1993). Alternatively, students in the majority (First Career students) may have been more anxious due to the presence of a minority (Hewstone & Islam, 1993; Stephan & Stephan, 2000). Either situation would render acquaintance formation more difficult.

It is possible that the two outgroups -- female students and Career Changers – were not equally integrated into their kitchen group. Examination of the social network

data for three kitchen groups in *E block* revealed that female students occupied multiple positions in kitchen groups from the center to periphery. (Only a few kitchen groups had a sufficiently high response rate to provide the full matrix of responses necessary for social network analyses.) In contrast, Career Changers were in the periphery. In addition, older students -- including Career Changers -- exhibited different patterns of socialization *outside* of the kitchen class, reducing the opportunities for acquaintance formation and positive experiences with First Career students. Older students, including Career Changers, were often observed eating alone during family meals, a time when the kitchen group was supposed to share a meal. A few Career Changers were observed having coffee or sharing a meal with the chef instructor, who was closer to the age of the Career Changer student. Although collegial interaction with the chef instructor might have provided a positive experience for the student, the Career Changers' absence from family meals was obvious to other group members. Moreover, a Career Changer's more equitable relationship with the chef instructor may have led to anger, resentment or jealousy among younger peers. Such activity may have been perceived as favoritism, thus coloring contact with Career Changers as well as judgment of their kitchen performance.

Research has shown that opportunities for interaction *outside* of the contact setting are essential to acquaintance formation and positive intergroup contact (Allport, 1954; Brewer & Brown, 1998; Cook, 1978; 1985; Hays & Oxley, 1986). At the CIA, acquaintance formation opportunities arose during cigarette breaks, extra-curricular recreational activities, and informal social activities, such as group dinners off-campus or at bars. Although male and female students within a kitchen group equally attended

activities outside the formal setting, Career Changers rarely participated. Many career changers had spouses, children, and/or other jobs that prevented them from spending additional time with their group. It is also possible that those Career Changers who were willing to attend informal activities experienced intergroup anxiety due to their uniqueness within the group (Stephan & Stephan, 2000), which may have rendered such events unpleasant. Opportunities for male students to form acquaintances with female students were readily available; in contrast, acquaintance formation opportunities for First Career students with Career Changers were more limited. This may have maintained the salience of Career Changers within the kitchen class, thus perpetuating the use of stereotypes (Acitelli et al., 2000).

5. *Negative stereotypes about Career Changer students are more pervasive than those regarding female students among the CIA student body, the CIA culture, and the food industry as a whole. As a result, students soon acquire negative expectancies regarding the Career Changer social category that may be confirmed through experience.* Older students were frequently mentioned as a category of students who don't integrate well with their kitchen group whereas the category "female students" was never mentioned in answer to this question. Those who nominated "older students" frequently mentioned that they did not integrate well due to physical demands of the classes and were "know-it-alls." Another category that was mentioned spontaneously -- students who are "slow" and "hold back the group" -- often were also identified as Career Changers. "Shy students" – those who are introverted, who do not form friendships easily, and who have trouble fitting into their kitchen group – also were mentioned in the same comment as "Career Changers."

In terms of institutional press to accept minority outgroups in the kitchen, the CIA has devoted its greatest efforts toward female students and international students. This cultural emphasis may be reflected to some degree in the study's negative contact effects. The CIA strongly encouraged the presence of female chef students in the kitchen, but was not as proactive with regard to Career Changers and older students in general. From the first day of orientation, the CIA stresses that the teaching kitchen is open to both males and females. The 2-day orientation includes an hour-long lecture regarding harassment at the CIA, and all of the examples concern sexual harassment (specifically, male students or instructors harassing female students). There is a chapter of the International Women Chefs and Restaurateurs on campus and over the past 5 years a number of commencement speakers have been women. Nevertheless, the teaching kitchen at the CIA still strongly reflects the dominant masculine and arguably younger culture. Of the 42 skills classes included in this study, only one was taught by a female chef.

Negative attitudes towards Career Changer students were evident both within the education institution and the food industry itself. One non-chef instructor expressed frustration with the Career Changer in class who challenged the lecture. A chef instructor was very candid with the Principal Investigator about the older students in his skills kitchen:

> "I prefer high school grads. They [Career Changers] don't appreciate the physical labor involved. Industry doesn't want them. They are not followers."

Just after the completion of the study, the CIA organized a support group specifically for Career Changers. Nonetheless, the negative stereotypes associated with Career Changers are underscored in advice given by Anthony Bourdain to aspiring chefs:

> "For the growing number of people who are considering becoming a professional chef as a second career I have some advice...If you've been working in another line of business, have been accustomed to working eight- to nine-hour days, weekends and evenings off, holidays with the family, regular sex with your significant other; if you are used to being treated with some modicum of dignity, spoken to and interacted with as a human being, seen as an equal..then maybe you should reconsider what you'll be facing when you graduate from whatever six month course put this nonsense in your head to start with....I wish I had a dollar for every well-meaning career changer who attended a six month course and showed up to be an extern in my kitchen. More often than not, one look at what they would really be spending their first few months doing, one look at what their schedule would be, and they ran away in terror." (2000, pp. 288-289).

Viewed from this perspective, the increase in negative attitudes toward Career Changers found in this study represents successful socialization among students to the norms within the institution and industry.

Summary

Although the divergence in contact effects for different outgroups was not predicted by previous research, it is not unprecedented. Biernat and her colleagues (Biernat et al., 1998) examined changes in Army officers' assessments of peers across two crosscutting social categories: race and gender. The subjects were officers in eight training groups. Stereotyped judgments increased over time, but at a much greater rate for ratings of female officers than non-White officers. The authors attributed this divergence to two sources: institutional culture and statistical salience. The Army placed

much greater emphasis on the avoidance of racial bias in assessments than on potential bias due to the sex of the officer. Although both women and minorities constituted statistical minorities, non-White officers were more prevalent (45%) than were female officers (14%). Biernat's explanation for her finding fits the results of this study quite well. Similar to that for non-Whites in the Army, there is a greater institutional and cultural press at the CIA to accept and equitably treat female students; less emphasis is placed on females in the Army and Career Changers at the CIA. Also similar to Biernat's finding for non-Whites in officer training groups, there are a greater proportion of female students than Career Changers whose proportions in kitchen groups mostly do not exceed "token" levels.

The number of plausible explanations suggests that the study's divergence in contact effects had multiple sources. Career Changers differed from female students in terms of their statistical salience, their formation of intergroup friendships, their social relations outside of the kitchen, and the stigma associated with the category in the CIA's culture and that of the food industry. These contextual considerations were strong enough to not only prevent the effects of positive intergroup contact as was found for the female student outgroup, but to create greater prejudice toward the outgroup, over time.

Social Context Matters for Intergroup Friendship Formation

The social climate of the kitchen group was linked to intergroup friendship formation through several mechanisms. Intergroup contact – as measured by group composition -- was critical to forming intergroup friendships: the more outgroup students within close proximity, the greater the chances that a student would form an outgroup friendship. Variations in the kitchen group's social climate predicted the formation of

intergroup friendships both in a direct relationship and by moderating the relationship between contact and friendship. The moderator model was tested with six social climate measures (i.e., equal status, cooperation, task cohesion, competition, conflict, and social cohesion) for two outgroups (female students and Career Changers). For friendships with female students, one (competition) out of six aggregate climate measures and three (cooperation, task cohesion, social cohesion) out of six individual climate measures were significant moderators of intergroup friendship formation. There were no significant moderator effects for climate on intergroup friendships with Career Changers, although a marginally significant effect for task cohesion on friendship formation was found.

Social Climate as the "Quality" of Intergroup Contact

The world is replete with examples of close, long-term intergroup contact with negative outcomes such as in Israel (Falah, 1996), Northern Ireland (Hewstone et al., 2000), and the American South (Cook, 1985). Reformulated social contact theory focuses on contexts in which intergroup contact leads to positive outcomes: only contact *under certain conditions* yields optimal effects – in other words -- the 'quality' of the contact counts. Laboratory and field studies of intergroup contact in contexts that embody optimal contact conditions as specified by Allport (1954) and underscored by Pettigrew (1998) show greater reductions of intergroup prejudice than those of less optimal contact quality (Pettigrew & Tropp, 2000).

Which characteristics of context facilitate contact effects and which ones are necessary conditions for attitude change is a continuing topic of inquiry for researchers studying intergroup relations (Pettigrew, 2000). Wittig and Molina (2000) characterized this line of research as a search for third variables which act as moderators of intergroup

contact. A similar conceptual approach was taken in this study, in which contact 'quality' was hypothesized to moderate the effects of contact 'quantity.' Indeed, several climate variables moderated the influence of intergroup contact on intergroup friendship formation for one outgroup (female students) but less so for the other (Career Changers).

An alternative conceptualization used in some studies is to treat social climate in the intergroup context as the actual measure of contact that results in prejudice reduction (see review by Pettigrew, 1998). In this study there was a direct relationship between several social climate dimensions (i.e., equality, competition, cooperation, and task cohesion) and positive attitude change toward female students (but not for Career Changers).

Given recent formulations that the formation of intergroup friendships is an essential condition for optimal intergroup contact (e.g., Pettigrew, 1998), the context in which intergroup contact occurs becomes ever more important. The results of this study further confirm the importance of context to intergroup friendships; social climate conditions in the kitchen group were found to facilitate the formation of intergroup friendships with both female outgroup members and, to a lesser degree, with Career Changer members. The confirmation of the proposed model further documents that social climate can influence who forms friendships with whom both directly and through its effects on contact.

Explication of Specific Contextual Effects

Studies of intergroup contact seldom measure the intergroup context from the perspective of those in the setting, instead relying upon the researcher's assessment of the context (Wittig & Molina, 2000; for exceptions see Gaertner et al., 1994; Green et al.,

1988, and Islam & Hewstone, 1993). To address this shortcoming in contact research, this study employed participant assessments of the intergroup context. Ratings of social climate were aggregated to form 1) mean scores for each kitchen group and 2) individual deviations from the group mean. This permitted the separate estimation of effects due to group climate and those due to individual divergence from the central tendency of the group rating. An important finding of this study was that individual deviations from the group mean were more predictive of both intergroup friendship formation and prejudice reduction than were ratings of the mean climate within the group. In other words, those individuals within a group who had more optimal individual construals of their group's climate were more likely to exhibit positive contact outcomes. This suggests an area for further inquiry: individuals may deviate from a group mean climate rating owing to their relative social position within the group. For example, more popular group members may perceive less tension in the group and be more amenable to the positive consequences of intergroup contact. On the other hand, those who are isolated and are experience a more negative climate are less likely to positively benefit from intergroup contact. An individual's relative position within the social fabric of the group thus may be an important determinant of the success of social contact efforts.

Social Climate Dimensions

Several contact theory researchers have called for clarification of necessary and facilitating conditions for optimal contact effects (e.g., Pettigrew, 1998; Stephan & Stephan, 2000). Even in studies that measure participant appraisal of individual social climate dimensions, such reports are analytically treated as a set (e.g., Islam & Hewstone, 1993; Pettigrew, 1997). In this study, the effects of each dimension were considered

separately, providing a rare quantitative assessment of the relative importance of optimal social climate dimensions. Because of the prominence of optimal conditions set forth by Allport and Pettigrew, it is important to review the specific effects of each in this study and to speculate on the reasons for their effects or lack thereof.

Equal Status

Whether equal status was sufficient in the contact situation is unknown: that is, it is unclear what the magnitude of 'equal status' is necessary for positive effects or what "equal status" means in the kitchen. From the perspective of an outsider (the Principal Investigator), there was putatively equal status in the contact situation at the CIA: all students had to make perfect the same knife cuts, learn about stocks, and take the same exams. Despite this apparent equity, climate ratings of equality varied significantly between kitchen groups.

The only formal distinction held by students was the role of leader within each kitchen; but this became a constant across groups. It is interesting to note that several group were female Career Changers. It is likely that these females were expected to 'mother' the group and to possess the organizational skills necessary for the group leader role. On occasions when these group leaders stepped out nurturing role and attempted to enforce cooperation and a shared sense of responsibility for common tasks, they sometimes experienced conflict with male students.

A number of informal status distinctions were evident. The emergence of differences between students in terms of acquiring and perfecting skills was unavoidable in any given class. It was readily apparent within the context of the kitchen when slices were not uniform, when one's consommé raft didn't rise, and when the chef instructor

had to step in to help a student catch up. Other inequalities emerged from the chef instructor's interactions with students, such as offering a vegetarian student the chance to make a vegetarian stock in addition to the other stocks being made by the class. Although positive, this activity – noticed by other students in the group -- reinforced the idea that not all students were equal. As discussed earlier, there were a number of facets of the CIA experience that rendered Career Changer students less than equal to their First Career peers. These sources of inequality were probably constant across kitchen groups and thus, for Career Changers, equal status was in fact less than equal. Although not measured quantitatively, it is possible that chef instructors may have significantly influenced the perceptions of equal status within a kitchen group. However well meaning, Chefs who are perceived as treating students differently on the basis of talent, motivation, sex, age, or other characteristics could have altered the feeling of equal status within a group climate.

This divergence between formal and informal status equality in the kitchen suggests revisions to this social climate measure for future studies. For example, additional items could assess whether students felt that the chef shows favoritism, whether the chef goes easy on struggling students, and other items that touch on the informal status hierarchy in the group. A peer nomination technique could also be utilized to identify the students who are perceived to be chef's favorite as well as the black sheep of the group.

Cooperation

The need to cooperate in the kitchen, to take responsibility for group tasks, and to help others in the group was clearly communicated in every skills class on a regular basis.

Despite a strong situational press toward cooperation as communicated by chef instructors, there were significant differences between kitchen groups in cooperation and task cohesion (how well the group pulled together around common tasks).

Task cohesion (Estabrooks & Carron, 1999) is conceptually similar to the Allport-Pettigrew (Pettigrew, 1998) requisite condition that intergroup contact occurs in situations where individuals participate in cooperative tasks toward common goals. Indeed, task cohesion and cooperation were highly correlated across kitchen groups ($r = .84$, $p < .01$). Consistent with contact theory (Pettigrew, 1998), both cooperation and task cohesion increased the positive effects of intergroup contact on attitudes toward female chef students. A marginally significant relationship was found between task cohesion and the positive effects of contact with Career Changers.

Why did the effects of task cohesion and cooperation sometimes diverge? One explanation is psychometric: task cohesion was measured more reliably than was cooperation. Furthermore, the cooperation measure referred to classes in general (i.e., "In most of my classes, students work together") whereas the task cohesion measure was more specific to the situation encountered in skills kitchen classes (i.e., "Most group members pitch in when work needs to be done") or specifically refers to skills classes (i.e., "Everyone in our group agrees about the importance of Skills class").

Competition and Cooperation

According to Pettigrew, for positive contact effects to occur there should be no competition between pre-existing ingroups and outgroups in the situation. It is unlikely that the competition reported by participants was along social categories such as gender or career status. On the other hand, competition was clearly a feature of the kitchen

context. In this study, competition among students significantly increased from *B block* to *E block*, but did not significantly vary between kitchen skills groups. These data appear to reflect the 'ambient' quality of competition at the CIA. Counter to predictions, mean competition within the group was a *positive* moderator of contact: greater competition increased the number of intergroup friendships formed with female students. The study's finding that *both* cooperation and competition measures were *positive* moderators of contact is consistent with recent research by Fiske (2000) on interdependent dyads. Participants in task dyads in which their outcomes were either positively linked (cooperative interdependence) or negatively linked (competitive interdependence) were more likely to pay attention to stereotype-disconfirming information about each other information than dyads with no interdependence. The more attention mutual outgroup members pay to information about each other that is expectancy-inconsistent, the less likely they are form impressions of one another on the basis of group characteristics, potentially yielding positive contact effects (Fiske, 2000).

The correlation between competition and cooperation within a kitchen group is not surprising, given the study's context. Although teamwork is strongly and consistently emphasized throughout the student's training, the CIA remains a professional school in which students compete for recognition and achievement and from which, upon graduation, students will compete for entry-level jobs in highly regarded restaurants and institutional kitchens across the country. A female Culinary student reflected:

> "When I first came here I thought it would be great, everyone would be excited about food. We're all having a great time, running across the fields...[Now] we're all going for the same job. Here you try to be better than anyone else."

On most days in *D* and *E block*, students brought their dishes to the chef for tasting; it was not difficult to discern students' satisfaction with their work from the look on their faces as they walked away from the chef's station or from their immediate behavior (eating the dish themselves or emptying it in the garbage bin). In situations where production was due at a specific time, students queued in front of the chef, providing an audience for his or her feedback to the student. As noted earlier, in standing team situations, students were often observed monitoring the progress of the other team. Part of the ongoing conversation among students toward the end of a kitchen class – as dishes were being tasted and evaluated – was who had done well, who had not, and why. Competition was also consonant with the strong masculine culture, which emphasizes speed, found in the teaching kitchens. Even when chefs emphasized carefully producing the meal over beating another student on time, male students were witnessed sacrificing the former to be number one.

In *D* and *E block*, instructors initially emphasized the importance of teamwork and taking responsibility for common tasks, such as turning off a burner left on, cleaning up a spill on the floor, or turning a knife that was precariously stored on a surface. However, chef instructors began to emphasize both teamwork and competition as the semester progressed. By *F block*, chef instructors emphasized getting the food out on time, which required competition for scare resources:

> [chef to student:] "If you need a burner, take a burner. Nice guys finish last. You're a train [sic]: go take it."

The need for high levels of cooperation within an environment of high competition inside and outside of the kitchen is typical of the food industry. In this sense, the CIA provided professional socialization in both.

Common Goals

Intergroup contact is more likely when group members work toward common goals (Pettigrew & Tropp, 2000). Although not measured in this study, it was assumed that common goals were consistent across kitchen groups. Most students were graded individually in their first skills class, but as the semester progressed, an increasing portion of their grades was based on team performance (e.g., the finished meal), thus establishing common goals. Moreover, a considerable amount of chef instructors' comments from the very first day of skills class concerned the goals of the group as a whole including cleanliness, timeliness, professional behavior, and quality of food production. These common goals were an integral part of the skills class experience: Even if a few students cooked a perfect soup, the group received negative feedback if dishwashing was falling behind or the trash bins were overflowing. Early concern with the common fate of the group was striking. For example, on the second day of orientation one student shared with the Principal Investigator that new students were already concerned that one vocal student was making the entering stream look stupid.

Normative Approval

With explicit institutional approval, intergroup contact is more likely to lead to prejudice reduction (Pettigrew, 1998). During the skills class sequence, the chef instructor was the most powerful, proximate authority. Variations in the degree to which chef instructors valued diversity and intergroup interaction among students was not

measured. Clearly, if chefs varied in their support of tolerance and interaction across groups, then this condition for optimal intergroup contact may have also varied among groups. An assessment of the variation among chefs in their perceptions toward and acceptance of outgroups is essential in any future studies of the CIA.

In the food industry, diversity is valued as a source of creativity in the kitchen in terms of ingredients, tastes, and cultures. New influences from Asia, Latin American, or Southeast Asia become the next big thing. In the actual production kitchen, diversity and intergroup contact are unavoidable. Writes Anthony Bourdain (2000) to aspiring chefs:

> "Learn Spanish!...The very backbone of the industry, whether you like it or not, is inexpensive Mexican, Dominican, Salvadorian, and Ecuadorian labor – most of whom could cook you under the table without breaking a sweat. If you can't communicate, develop relationships, understand instructions and pass them along, then you are at a tremendous disadvantage.....Also, learn as much as you can about the distinctive culture, histories and geographies...Learn their language. Eat their food. It will be personally rewarding and professionally invaluable." (pp. 289-290)

Regardless of variation between chef instructors or institutional cultures, intergroup interaction is a staple of the food industry.

At the culinary institutional level, normative emphasis on intergroup contact depended on the outgroup. At orientation and throughout the curriculum (particularly through interpersonal communications), the CIA encouraged tolerance of diversity in terms of gender, nationality, and ethnicity. Such authoritative endorsements of diversity and tolerance based on age were rare.

Summary

Few other studies have explicitly tested the quality of contact as a moderator, despite the fact that such a conceptualization embodies the theory. This study provided partial confirmation for a moderator model wherein contact 'quality' conditions the effect of contact 'quantity' on intergroup friendships. Rejecting the moderator model outright based on these findings is inappropriate, given that divergence of effects depended on the outgroup under examination. The moderating effects of intergroup contexts are, in other words, context-dependent.

Several areas of future research are apparent. Testing of optimal contact conditions separately in this study revealed stronger effects for cooperation, social cohesion, and competition within the intergroup context than for equal status. Given that these dimensions 'naturally' varied between groups, future examination of the relative strength of contact conditions is warranted. In this study, cooperative climates and competitive climates yielded similar moderational effects on intergroup friendships, counter to the predictions of contact theory. The testing of this relationship in other field settings – which may be experienced both simultaneously as cooperative and competitive – would clarify whether this finding generalizes. Surprisingly, measures of equal status, conflict, and social cohesion within the kitchen group did not moderate the effects of contact on friendship formation. Given the lack of studies systematically examining the individual influence of each social climate dimension, this study certainly suggests contextual variations in the importance of the classic Allport-Pettigrew optimal contact conditions – *equal status*, *cooperation* in pursuit of *common goals*, and *normative approval* of contact.

Finally, a unique contribution of the study was the surprising finding that individual appraisals of the social climate (as measured by deviations from the group mean) were more predictive of intergroup friendship formation than the aggregate climate within the group. No other studies come to mind that has systematically decomposed the effects of social climate in this way. These findings should be taken with some caution, as the power to detect aggregate effects was limited: There were only 13 degrees of freedom at the group level. The findings suggest that the effects of social climate as a moderator of contact are related to variations in individual experience within the group. These individual experiences may, in turn, be subject to the dynamic social relations between group members. Thus, individuals who experience group climate more negatively are less likely to benefit from the intergroup contact within them.

Friendship Formation as Mediator of Intergroup Contact

The mediator model was tested for three forms of intergroup friendships (males' friendships with female students, Culinary students' friendships with Baking students, and First Career students' friendships with Career Changers) and three attitude components: positive beliefs, positive feelings, and negative feelings. In no case were all conditions required for mediation supported by the data. Intergroup contact consistently predicted friendship formation, but in only two out of nine tests did intergroup contact predict attitude change.

There are few clear explanations for the lack of mediation of the positive relationship between intergroup contact with female students and attitude change. One possibility concerns the degree of contact between students in a kitchen group. Given relatively high levels of contact in the kitchen class (15-18 students in class for six hours,

five days a week) increased familiarity with outgroups, individualization, and behavioral change may have occurred without friendships having formed. These findings remain tentative, as there was no competing predictive model in the study that would be supported by a lack of mediation by friendship formation on intergroup contact. That is, accounting for a lack of mediation is analogous to proving a negative.

Although friendship formation did not account for attitude change, this finding does not rule out the possibility of other potential mediators. The formation of intergroup friendships is presumed to embody many of the processes theorized to underlie social contact effects such as increased knowledge of an outgroup, behavioral change, ingroup recategorization, and ingroup reappraisals (Pettigrew, 1998). Despite a lack of mediation by intergroup friendship formation, these other processes remain plausible explanations for the positive contact effect toward female chef students.

Even though the mediational model was not supported, intergroup contact within the kitchen group clearly had consequences for participants in the study. Contact with female students and Career Changers had significant -- albeit divergent -- effects on short-term attitude change. Intergroup contact did lead to positive, short-term change in attitudes toward female chef students and a decrease in First Career students' positive beliefs toward Career Changers; however, neither relationship was mediated by friendship formation. Variations in contact also consistently predicted the number of intergroup friendships formed by participants within a kitchen group. The relationship between contact and friendship formation ranged from in effect sizes from medium to large. This finding underscores the importance of access to outgroup members in the

context of the CIA. Proximity to outgroup members does not always lead to friendship formation (e.g., Eshel & Kurman, 1994), but in the context of the CIA it clearly did.

Were Ingroup/Outgroups Distinctions Sufficiently Strong?

The study failed to confirm either positive or negative effects of intergroup contact on Culinary students' attitudes towards Baking students. Because the groups did not share kitchen skills classes, the study's hypotheses regarding the moderating effects of social climate could not be tested. Compared to female students and Career Changers who shared a kitchen group, intergroup contact between Culinary students and Baking students significantly decreased as students moved into *C block.* Yet, Baking students represented the study's most well developed outgroup. There was a different curriculum for students pursuing Associate's or Bachelor's degrees in Culinary Arts versus Baking and Pastry Arts. Bakers were physically separated from most Culinarians: beginning at *D block,* Baking students took kitchen skills classes in the Baking building. Culinary students' names were embroidered in green thread on their uniform whereas Baking students' names were in brown.

Given a relatively low level of cross-specialty contact as the semester progressed, it was not surprising that Culinary students' beliefs about Baking students worsened during the study. Observations and interviews by the Principal Investigator revealed both a vocabulary of derogatory terms for Bakers (none were heard that referred to Culinary students) as well as spontaneous comments made by Culinary students alluding to the Bakers' second class status that were made mostly with good humor, but which made Baking students' identity salient in contact situations. One of the opportunities for continued contact with Baking students was in first semester writing classes. Although

the study did not reveal positive contact effects based on taking writing class with Bakers, Culinary students were much more likely to form intergroup friendships with Bakers if they shared a class. Intergroup friendships with Bakers, in turn, were predictive of a decrease in negative feelings towards Bakers, the only such finding in the study. Unfortunately, social climate data were not collected for Gastronomy or writing classes, thus preventing the testing of their moderating effects on contact. Given these findings, a further investigation of the relationship between the quantity and quality of cross-specialty contact in these non-kitchen classes on friendship formation and attitude change is warranted.

An alternative perspective on the study's findings is that *none* of the ingroup/outgroup distinctions were strong enough in the context of the CIA to produce intergroup contact effects that are found elsewhere in the research literature. For example, contact studies employ group distinctions based on a history of conflict arising from racial prejudice (whites and blacks in the United States), sectarian conflicts (Protestants and Catholics in Northern Ireland), or territorial conflicts (Jew and Arab in Israel). Indeed, these longstanding conflicts are consistent with a realistic group conflict explanation for prejudice (Stephan & Stephan, 2000), namely that group biases arise from actual conflicts over resources such as political power or territory. However, positive intergroup contact effects are not restricted to these more vivid forms of group conflict. For example, Pettigrew and Tropp meta-analysis revealed the strongest contact effects for outgroups based on sexual orientation followed next by race/ethnicity and below-average contact effects for distinctions based on physical disability, nationality, or mental illness. Although emerging ingroup biases were evident in the study – attitudes worsened on

average toward Bakers and Career Changers – these study's outgroups may have still lacked the permanent distinctions that are associated with other groups examined in contact studies. Further, although positive contact effects found in studies of merging competing banks or rival middle schools (Gaertner et al., 1996) are less permanent than a distinctions such as nationality, they are still longer term than the four months in this study.

Cognitive and Affective Components of Prejudice

One unanticipated finding of the study was that statistically significant contact effects were restricted to belief outcomes; positive and negative affective measures of prejudice were not predicted by contact. This pattern is inconsistent with Pettigrew's meta-analysis in which intergroup contact effects were slightly stronger for studies employing affective rather than belief-based dependent variables (Pettigrew & Tropp, 2000). Two plausible explanations will be reviewed: the study's design and a lag in contact effects.

One important design issue concerned the study's statistical power. Analysis of the orientation questionnaire data collected from the first stream of CIA students revealed weak intercorrelations among affect items; a replacement set of affect items were substituted for the second and third streams. As a result, the number of cases in which change in affective items could be tested was a third smaller than the cases for the belief items. The belief scales were slightly more reliable (mean alpha = .88) than positive affect (mean alpha = .86) and negative affect items (mean alpha = 83).

Another explanation for differences in belief and affective items is that changes in *feelings* toward outgroup members may take a longer time to emerge than changes in

beliefs about outgroup members. For example, ingroup members may change beliefs that outgroup members are equally capable to ingroup members within one or two months, but more time may be required for ingroup members to feel more positively about them. Although reasonable, this explanation contrasts with Pettigrew's recent theoretical reformulation (Pettigrew, 1998) in which changes in affective prejudice toward outgroup members are thought to precede changes in cognitive components of prejudice. There is little research available regarding differences in the temporal sequence of change in belief and affective components of prejudice. Consequently, this topic would benefit from additional studies.

Strengths and Limitations of the Study

The methodological strengths of the study included a longitudinal design, the CIA's system of random assignment to kitchen groups, a multidimensional operationalization of attitudes, multiple friendship measures, individual reports of social climate, and utilization of ingroup/outgroup distinctions that were psychologically meaningful in the study's context.

Intergroup contact is most appropriately a theory of prejudice reduction and most appropriately measured by examining changes in attitudes on at least two time points (Pettigrew, 2000). In this study, attitude measures were collected on the student's first full day at the CIA (ostensibly measuring attitudes than had yet to be shaped by the context) and again at *G block* four months later. Any change in attitudes could then be confidently attributed to the context of the CIA. Moreover, the longitudinal design permitted measurement of the social climate of kitchen groups over time vis-à-vis intergroup contact conditions. This documentation of an emergent social climate appears

to be unique among studies of intergroup contact.

The CIA's method of assigning Culinary students to sister groups (a.m. vs. p.m.) which were then split into kitchen groups (even vs. odd) created a natural experiment in which subjects were quasi-randomly assigned to 12 groups. The assignment was not completely random: it employed an nth selection rule from an alphabetized list. Nonetheless, variations in the number of females and Career Changers in each group became one independent variable (intergroup contact) and variation in the social climates that emerged within each group became a second independent variable in the study. The principal investigator manipulated neither contact nor climate.

Prejudice reduction was operationalized as changes in either beliefs (positive) or in feelings (positive and negative) toward the study's outgroups. Consistent with the tripartite approach to attitude measurement (Breckler, 1984; Crites, Fabrigar, & Petty, 1994; Eagly & Chaiken, 1998; Krysan, 1998) and with intergroup contact researchers (Pettigrew & Tropp, 2000), cognitive and affective components of prejudice were measured. Both provided important data: variations in intergroup contact predicted change in beliefs whereas intergroup friendships were linked to changes in negative affect.

Another strength is the use of multiple measures of friendship formation and depth. Both friendship nomination and friendship roster formats were used at different times. The nomination measures provided data regarding ingroup and outgroup memberships and the sources of friends (e.g., stream or kitchen group) that enabled a profile of each participant's circle of friends. The roster format provided friendship ratings of all members in the participant's skills kitchen group, from which the social

network of the group could be described. Interpersonal relationship researchers (Blieszner & Adams, 1992; Berscheid & Reis, 1998) have strongly argued for friendship studies that are longitudinal, thus reflecting the nature dynamic arc of friendship formation, the predictors of deepening friendships, and the precursors to friendship dissolution. This study was able to do that.

The majority of intergroup contact studies rely upon an imputation of optimal social climate dimensions (e.g., equal status) by the researcher. In such designs, social climate is treated as a fixed effect: intergroup contact effects are compared across optimal and non-optimal social climates. In this study, participants provided individual ratings of their kitchen group's social climate at two time points. These individual appraisals of social climate afforded several advantages. Rather than relying on a researcher's appraisal, the participant becomes a direct 'observer' of the social context. In addition, individual ratings allowed the partitioning of between-individual variance from that of between-group variance. The finding of significant variation between kitchen groups enabled social climate to be treated as a random effect thus increasing the power to test for intergroup contact effects.

Study Limitations

Following the advice of Dixon and Reicher (1997), the three outgroup categories (gender, specialty, career status) were selected because they appeared meaningful within the study's setting, reducing the possibility that changes in outgroup prejudice were epiphenomenological. The categories were first identified through interviews with CIA alumni and administration, as well as two popular books about the school (Ruhlman, 1997, 2000). Subsequent interviews with current students, chef instructors, and non-chef

instructors over the course of the study confirmed the use of these three categories within the setting. (In almost every case, these categories were mentioned without prompting on the part of the Principal Investigator.) Of course, any use of social categories in a research endeavor risk their reification with the research community as well as the population under inquiry (Stanley & Wise, 1993).

The major threat to the internal validity of a longitudinal study is non-response, which usually takes the form of increasing participation attrition over time. In this study, the overall response rate was 75%. Examination of non-respondents at different times revealed few differences among participants. Related to attrition, however, was a mid-study 'valley' in response rates, which reduced the power of the analyses utilizing friendship measures, particularly the sociometric measures. Social network analysis requires a full matrix, i.e., 100% of group members rating 100% of group members. Participation among 6 of 14 groups was sufficiently high so that a full matrix of relationship ratings was available by assuming symmetric relationships. With only six kitchen groups, potential relationships between social network metrics (e.g., density) and group social climate dimensions (e.g., cooperation) were not testable.

Intergroup contact and friendship in first semester kitchen groups during D and E blocks were used to predict attitude change at *G block*, some six weeks later. Optimally, the final attitude measure would have been administered immediately after the end of the first semester. This timing would have also reduced the influence of intergroup contact in the second semester kitchen groups. Moreover, an additional attitude measure at the end of *J block* (three months later) would have provided trend data that would have further confirmed enduring attitude change.

Only three chef instructors taught more than one of the kitchen groups included in the study's sample. Given that the remaining eight groups were each taught by different chef instructors, the partitioning of a 'chef effect' from a 'group effect' was not possible. Such modeling would have provided vital information regarding the source of significant between-group variations in social climate. It would have also permitted an analysis of how various chef characteristics (i.e., age, experience, philosophy of culinary education, management of kitchen interactions) shaped the kitchen group.

This study focused predominately on structural and relational influences on intergroup friendship formation and prejudice. Structural influences included the CIA curriculum and culture, chef instructors (who varied at the group level), kitchen group climate, and the pattern of social relations within a group. Individual personality and experience are also incorporated in theoretical formulations of contact theory (Pettigrew, 1998) and prejudice reduction (Stephan & Stephan, 2000). For example, friendship formation may have been influenced by individual predispositions toward sociability or shyness, extraversion, or need for affiliation. Likewise, initial attitudes as well as attitude change may have been influenced by the participants' orientation to group hierarchies in general (i.e., social dominance orientation) or implicit theories about the acquisition of chef skills. These personality characteristics should be included in future studies both for their potential influence on the study's outcomes (friendship formation and attitude change) as well as their potential moderational effects on the structural influences examined in this study.

One limiting issue pertaining to testing social climate effects concerned statistical power. A total of 14 kitchen groups were studied; the degrees of freedom associated with

the examination of one group-level variable was 12 (groups – 1 predictor – 1), which is relatively small. When this study was originally designed, it was anticipated that within each kitchen group, participants would be assigned to standing teams of 4-5 students. This would have yielded roughly 70 team level units, nested within the 14 kitchen group level units. Thus, the study was underpowered to detect social climate effects.

Another limitation involved the measurement of friendship. Friendships were based on network roster data in which each participant rated their relationship with all other group members (on a 1-7 scale). The use of different cutoff criteria – a minimal rating of 3 or 5 – yielded social network profiles that were either overly connected or too fragmented. The midpoint of the relationship scale produced the most optimal cutoff point, but the fact remains that the criterion for what constituted a friendship was determined by the Principal Investigator rather than by the participants themselves. Future replications of this study should undertake the same evaluation of the criterion used to label a dyadic relationship a friendship. Future of analyses of both this study's data and replications should explore alternative operationalizations of intergroup friendship. To test the study's theoretical model, intergroup friendship formation was based on number of the raw number of friendships. Although these friendships had to be of a minimum depth to be counted, it may be useful to model both two levels of friendships – both casual and deep – for both mediational and contact effects in the theoretical model as well as social network analysis.

Conclusion

The social contact hypothesis was first described by researchers in the late 1940s and early 1950s. These researchers were motivated by the ravages of intergroup conflict

during World War II and domestic racism in the U.S. (Allport, 1954, Williams, 1947). As a social psychological theory, the social contact hypothesis has drawn its strength from application and experimentation in applied settings and provides an orientation to understanding the individual, social, and transactional forces within a setting that maintain, exacerbate, or diminish hatred between groups. As a setting for studying intergroup contact, the Culinary Institute of America provided much more authentic social situations and variations than could have been engineered in a laboratory. As a natural experiment of intergroup contact, the day to day rewards, challenges, and conflicts that provided the context for friendship development would be nearly impossible to replicate, particularly over the study's six months of data collection. Friendships were formed, deepened, and dissolved; the research did not have to rely upon a one-time rating of liking or friendship potential.

The study found that intergroup contact effects were highly context-dependent, with divergent outcomes depending on the outgroup target. At the same time and within the same groups, intergroup prejudice both emerged and diminished. While certain group climates were conducive to the formation of intergroup friendships, such friendships did not necessarily buffer students from increased prejudice. Students did not enter the CIA with negative attitudes toward older students but acquired such prejudice through contact with them. Institutional and cultural stereotypes may have shaped expectations of students toward Career Changers in their first semester, leading to impression formation consonant with food industry norms. Neither the effects of intergroup contact nor of intergroup friendships are formed in a vacuum. They take on the flavor of the context in which they occur: When you add others, merely stirring is not always enough.

CHAPTER FIVE: RECOMMENDATIONS TO THE CIA FOR POTENTIAL INTERVENTIONS

Several of the study's findings suggest interventions that could be undertaken by the CIA to improve the experience of outgroups at the school. These recommendations are presented below. Careful deliberation by the CIA leadership is urged when implementing any of these interventions, as they must be balanced against other priorities at the school.

Contact Leads to Friendship

Within the kitchen group, anywhere from a quarter to half of the variance in intergroup friendships was predicted by the number of outgroup members in the group. This clear finding underscores the importance of access at the CIA. *To a degree, simply increasing the proportion of outgroup members within each kitchen group will increase the number of student friendships across groups.* For Career Changer students, contact also led to greater intergroup prejudice, so changes in other facets of the CIA experience are recommended.

The Kitchen is a Man's Place

Analysis of additional study data (Livert & Revenson, APS, 2003; not presented in this dissertation) revealed that male and female students reported equal levels of stress during the beginning of their first semester at the CIA. However, as students progressed from lecture classes into the kitchen to take fabrication and skills classes, their experiences began to diverge. Male students' stress levels declined, in spite of increased competition between students. On the other hand, female students experienced greater

stress when taking *C, D, E,* and *F blocks* than earlier in the semester. Although female students had less prior food industry experience on average when compared to male students, even those with extensive prior experience reported the skills kitchen to be a more stressful environment than their male counterparts. The pattern of findings suggest that female chef students are exposed to gender-specific stressors. Observations made during the course of the study confirm the existence of a masculine culture – including sexist jokes, aggressive handling of kitchen equipment, and verbal abuse – and the efforts of female students to cope in this environment by performing such stereotypically masculine behaviors themselves. The experience of being a female student is not any more stressful than a male student during traditional format classes (e.g., Gastronomy). However, as they moved into the teaching kitchen, female students reported increased stress. *Essentially, the skills kitchen classes at the CIA reflect the male culture dominant in the professional kitchen (Bourdain, 2000;Fine,1996). Such a culture could be considered appropriate training for the industry as it mirrors that of many professional kitchens. However, if the CIA administration chooses to address this issue, more attention will need to be focused on modeling a different kitchen culture for male and female students alike. Such efforts require the active participation of those who shape kitchen cultures, namely students, chef instructors, other faculty, and the CIA leadership.*

Intergroup Contact Improves Attitudes toward Female Students

The greater the number of females in a kitchen group, the more positive the short-term change in attitudes toward female students in general. This represents a powerful intervention to redress and possible prevent the production of sexist attitudes both within the CIA and in the professional kitchen that students will enter upon graduation. *The*

simplest method to address gender inequality in the kitchen – placing a greater number of female students in each kitchen group – can have discernable positive effects on male student attitudes. At the instructor level, the assignment of more female chefs to teach these early skills classes is also advised.

Intergroup Contact Worsens Attitudes toward Career Changer Students

The greater the number of Career Changer students (or any students 28 or older) in a kitchen group, the more negative First Career students' attitudes toward Career Changers becomes over the first semester of chef training. This finding raises concern. Observational and interview data were consistent with questionnaire data: interaction with older students often reinforces and even intensifies stereotypes, *even when their performance is equivalent to that of younger students*. Several explanations for this relationship have been reviewed and more than one is likely responsible for the study's findings. Based on the data and my interpretations, the CIA should increase their efforts to sensitize incoming students to age-based diversity. For example, a positive discussion of the different kinds of students who choose to attend the CIA by strong authority figures are Orientation (i.e., President Ryan, Chef Gillesse) may be useful. An even more powerful impression would be made by a Career Changer chef instructor at Orientation, who could talk about his or her unique challenges.

A Successful Kitchen Group is Good for Minority Students

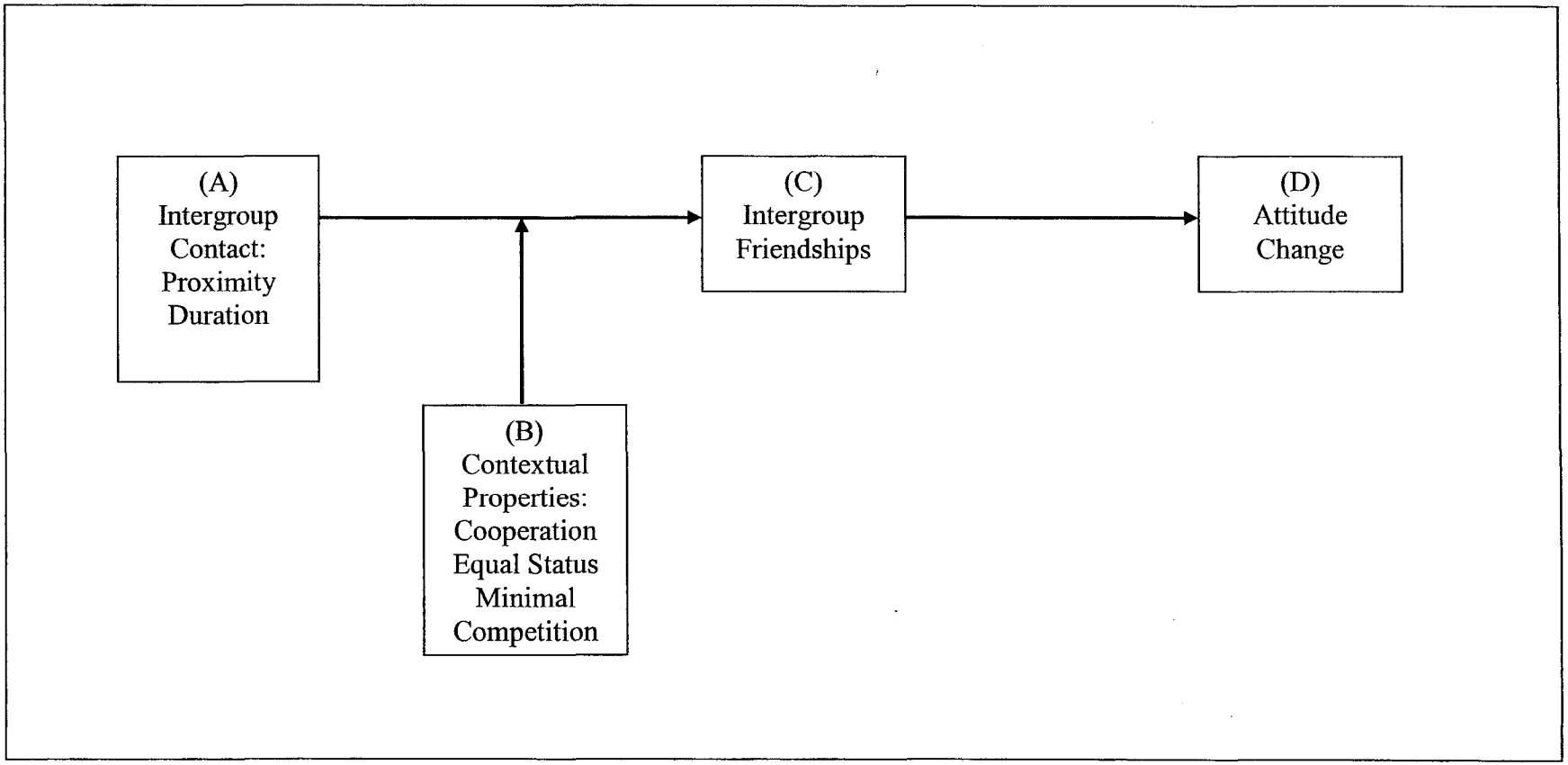
Kitchen groups that are successful in achieving individual goals (e.g., production) as well as collective goals (i.e., stocks, cleanup) are also more likely to have friendships across group distinctions (i.e., gender, career status). This is encouraging: Pursing the goals of a successful skills class also leads to improved relations between majority and

minority students. Such groups appeared to embody both cooperation when required and competition in mastering skills and techniques. *Chef instructors who are successful at motivation students to develop a positive task orientation, to cooperate, to take responsible for issues pertaining to the 'commons,' and to take seriously their training at the CIA also provide healthier environments for intergroup interaction.*

Figure Captions

Figure 1

Theoretical Model of Intergroup Friendship Formation and Social Contact Effects



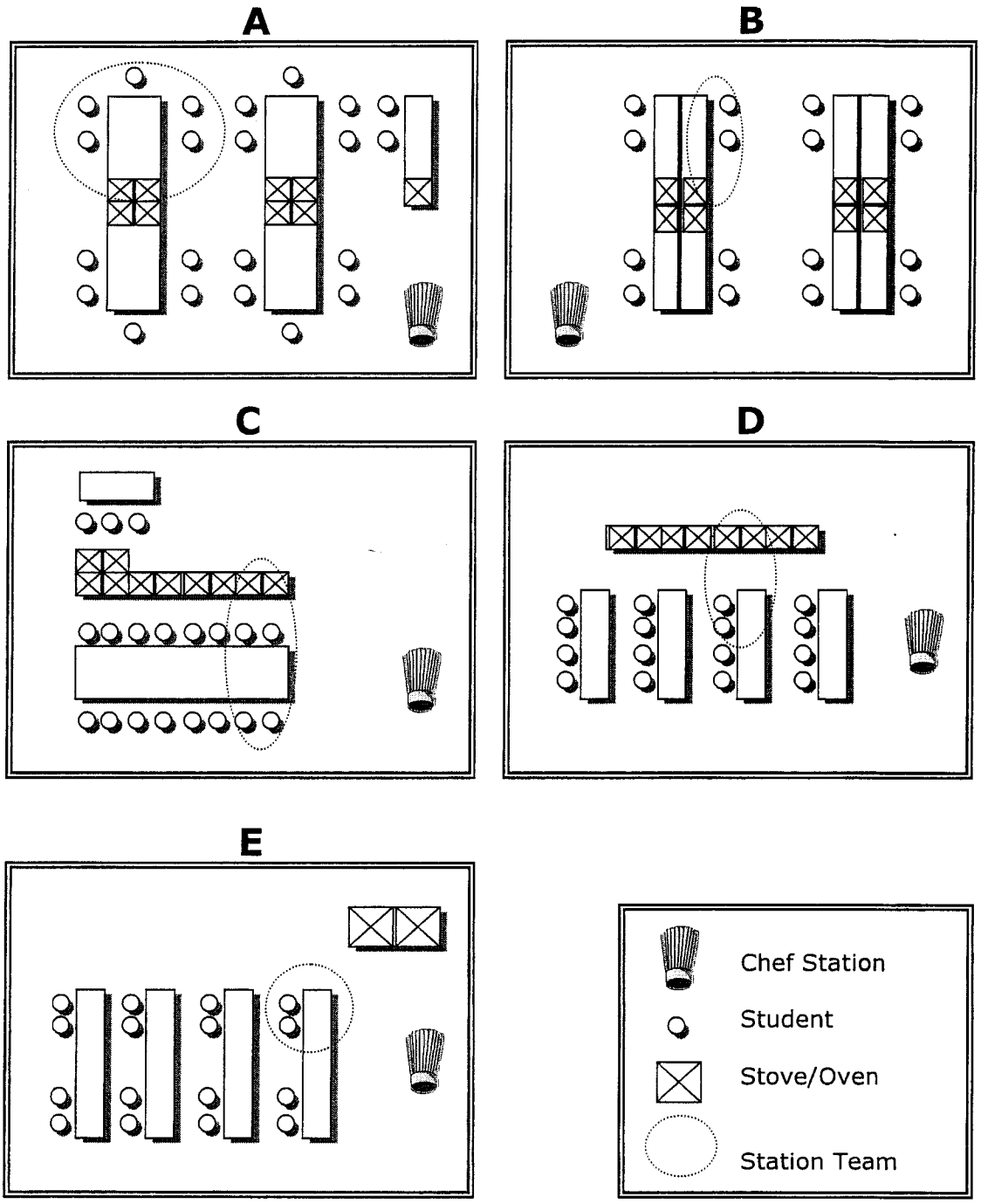
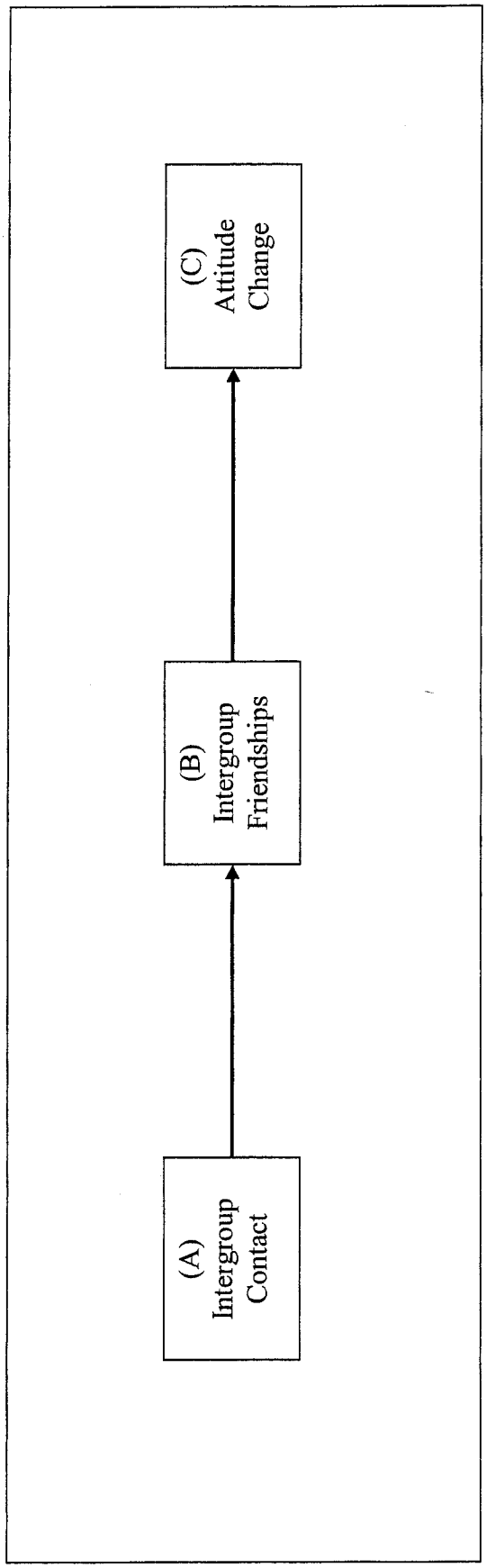


Figure 2.



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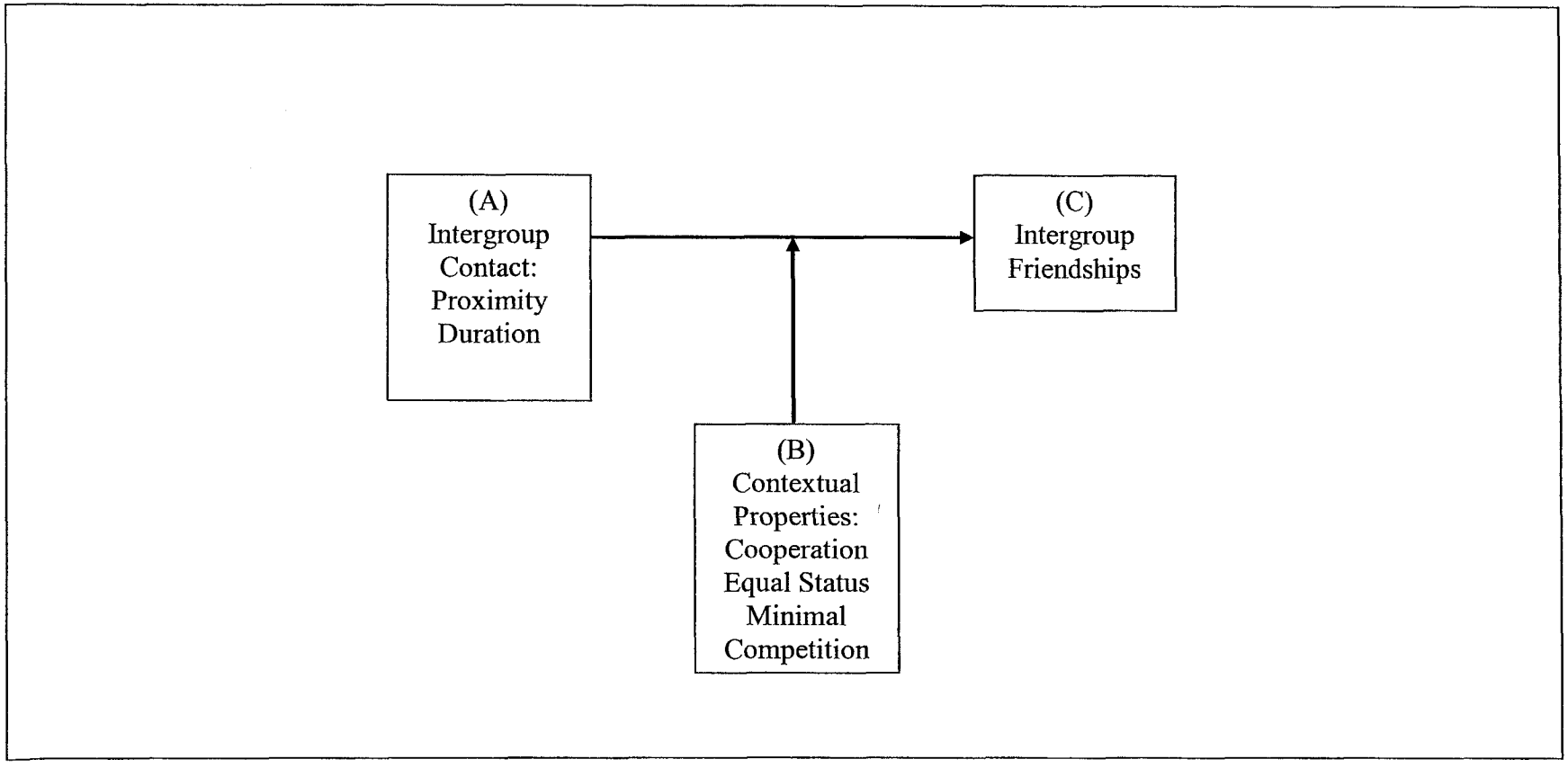

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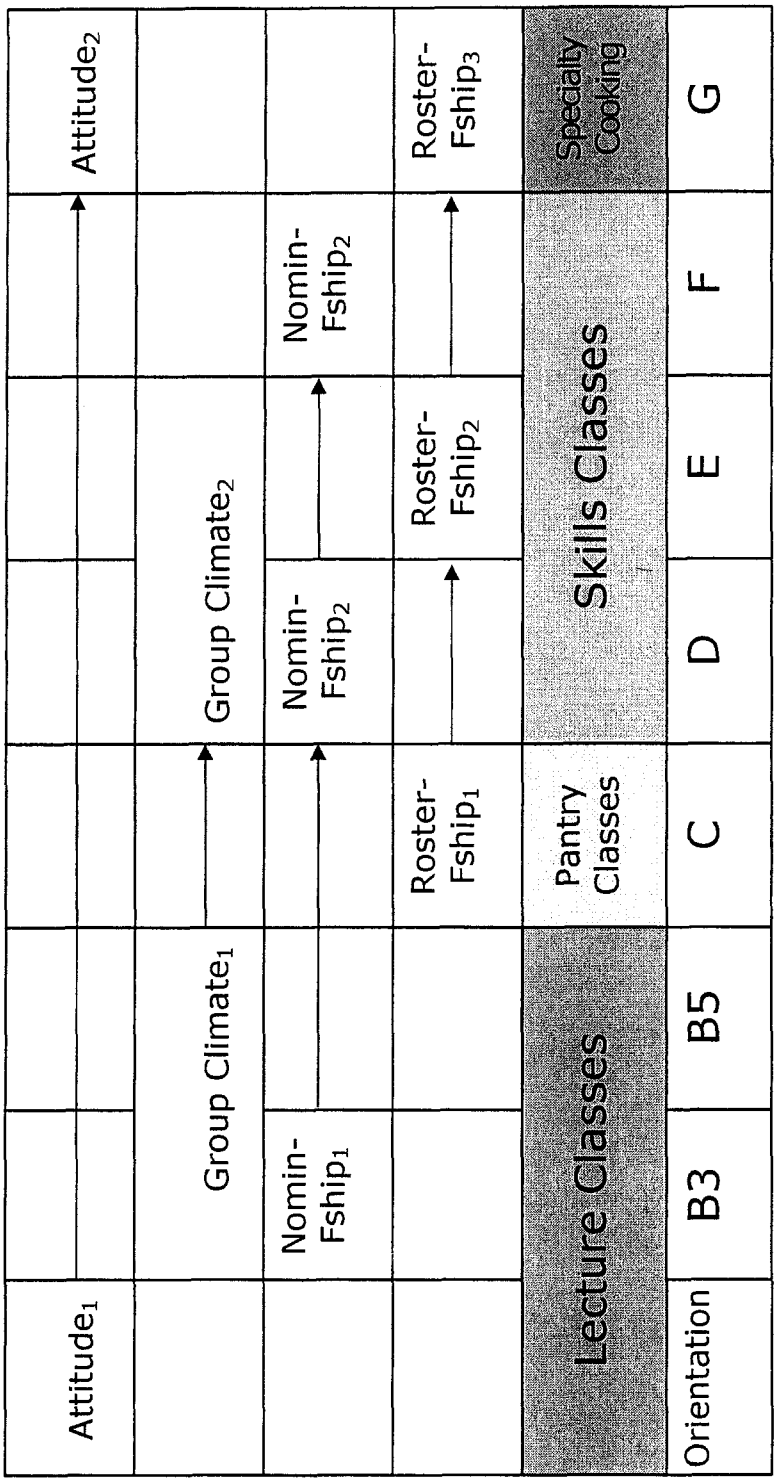

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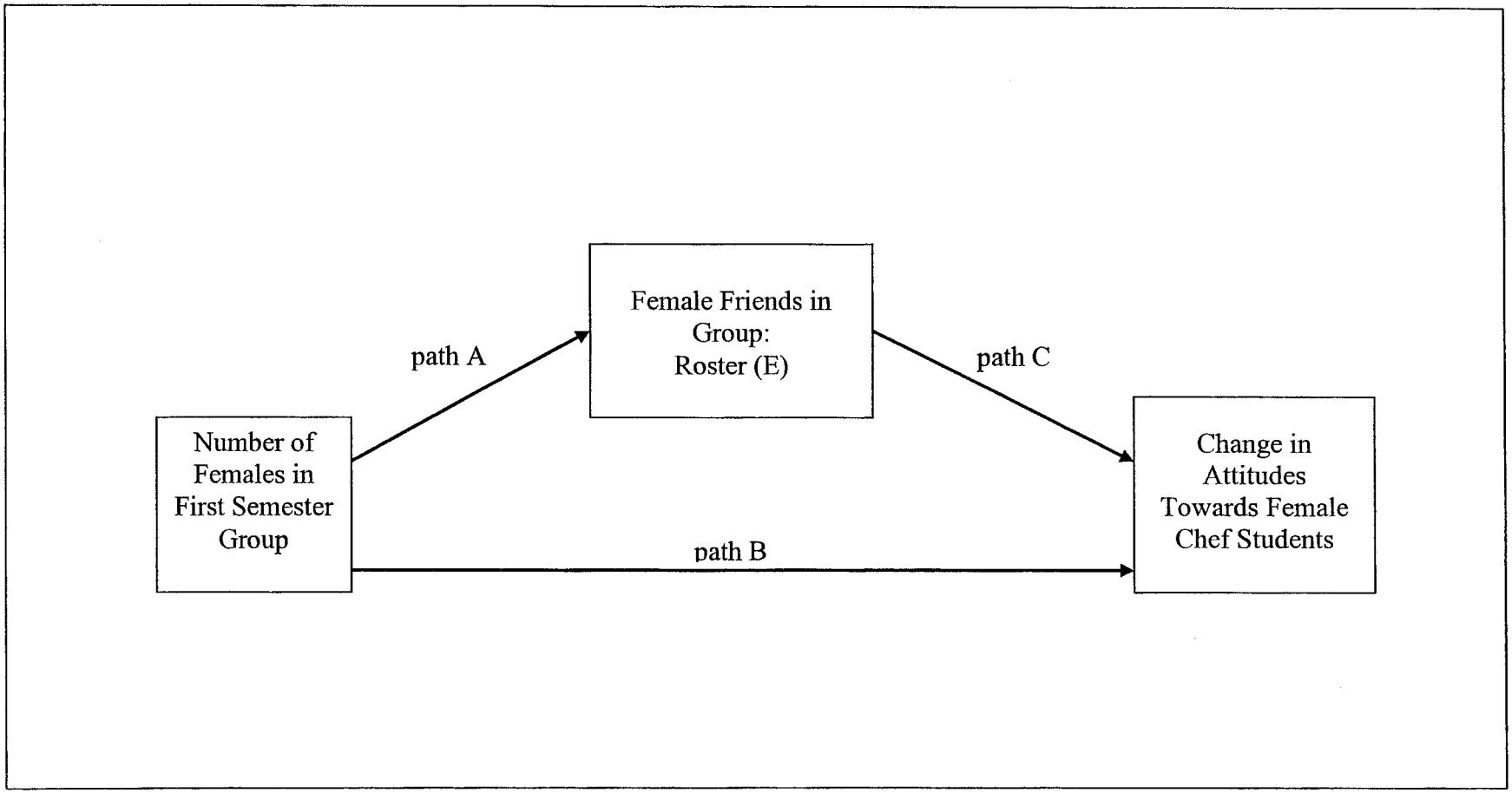

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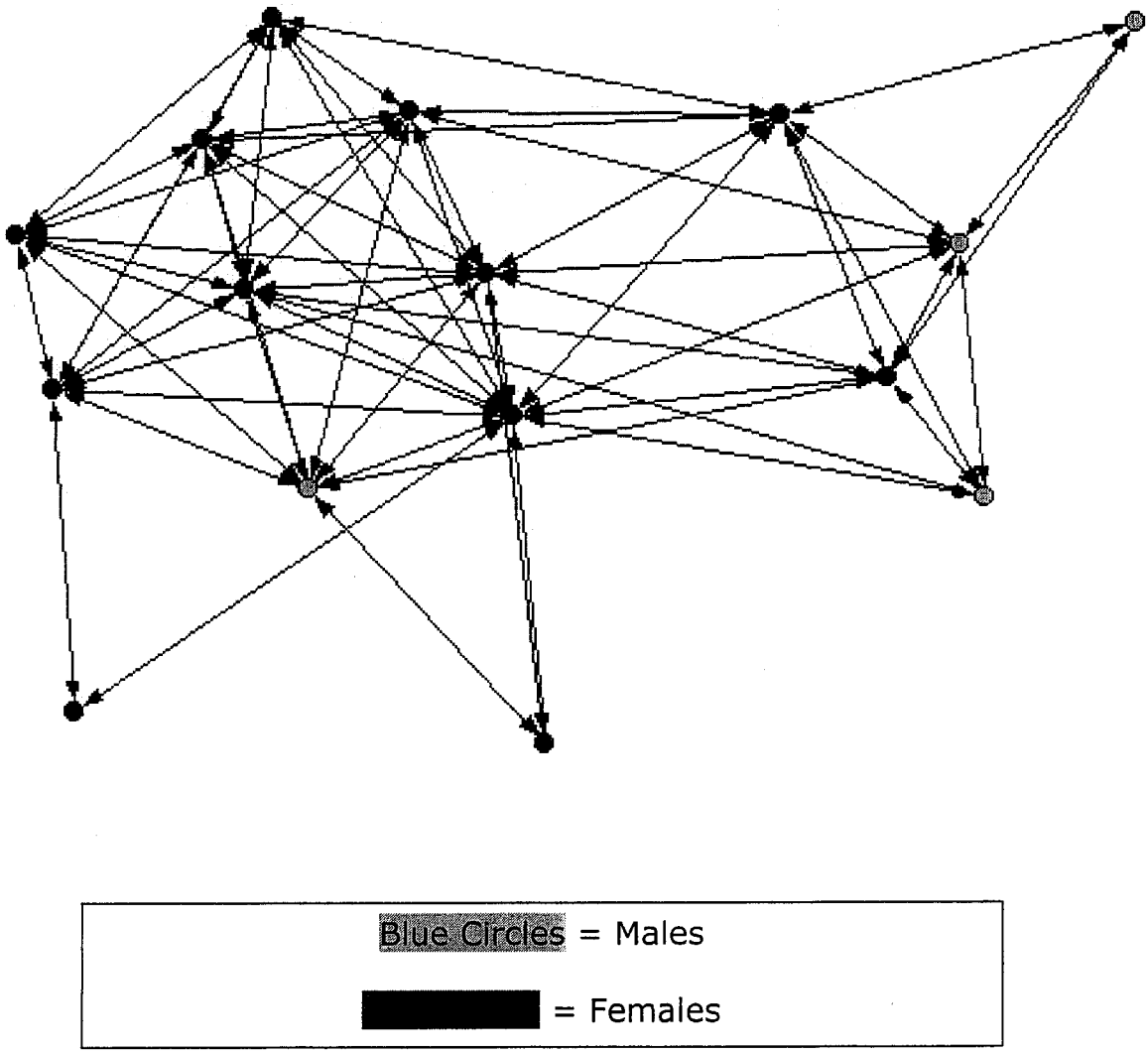

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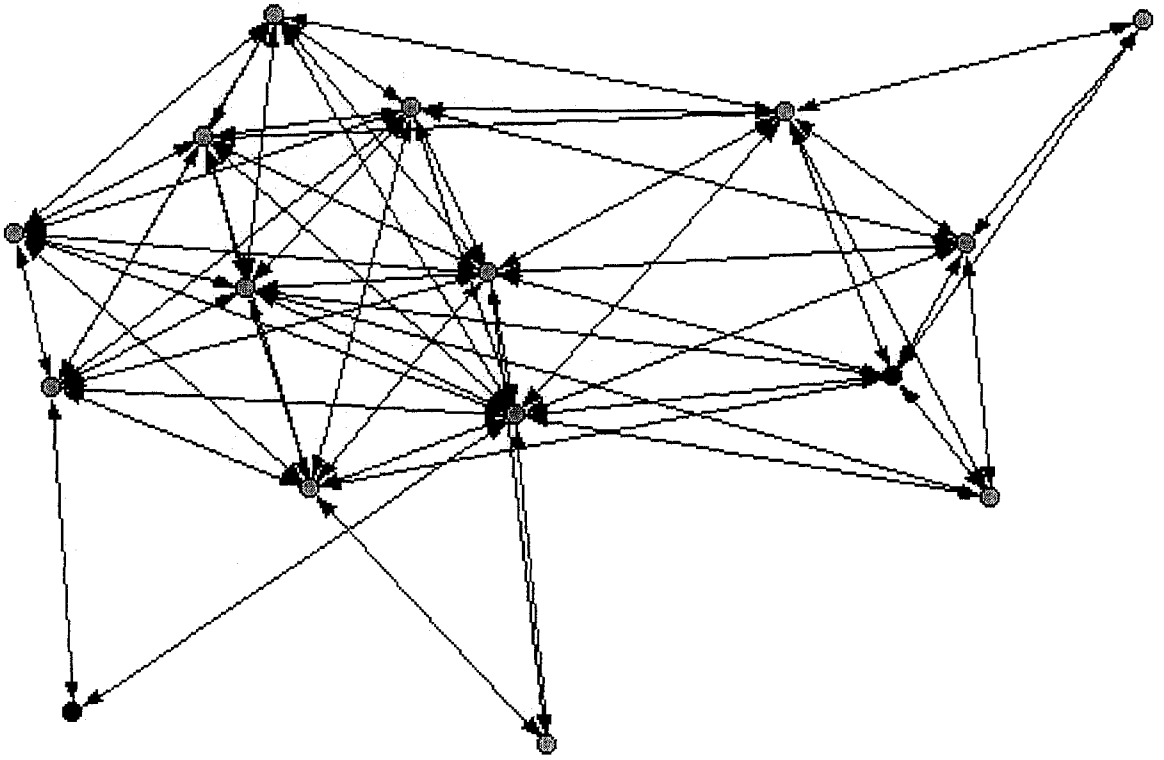


Blue Circles = First Career Students

= Career Changer Students

Figure 8.

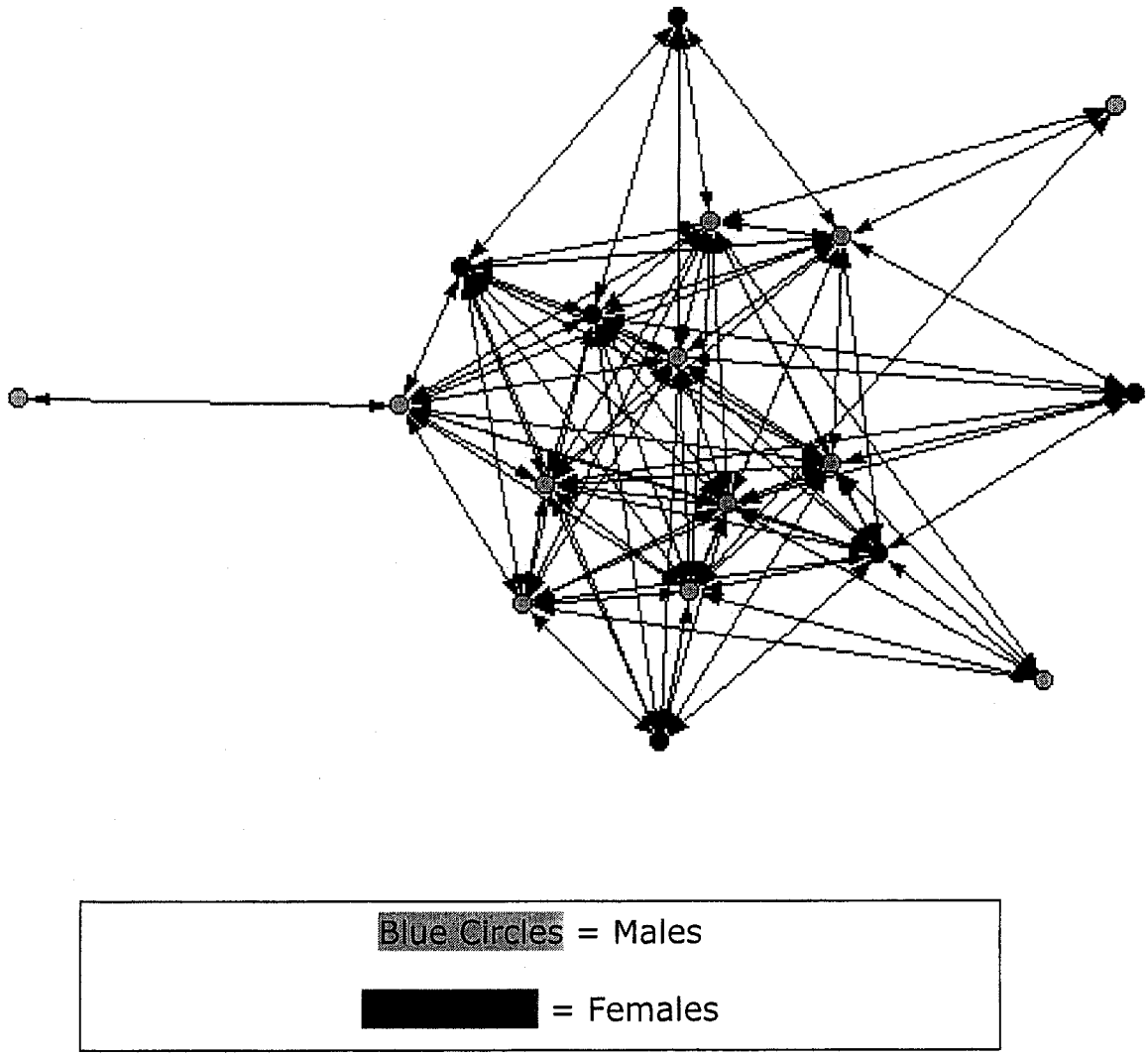


Figure 9.

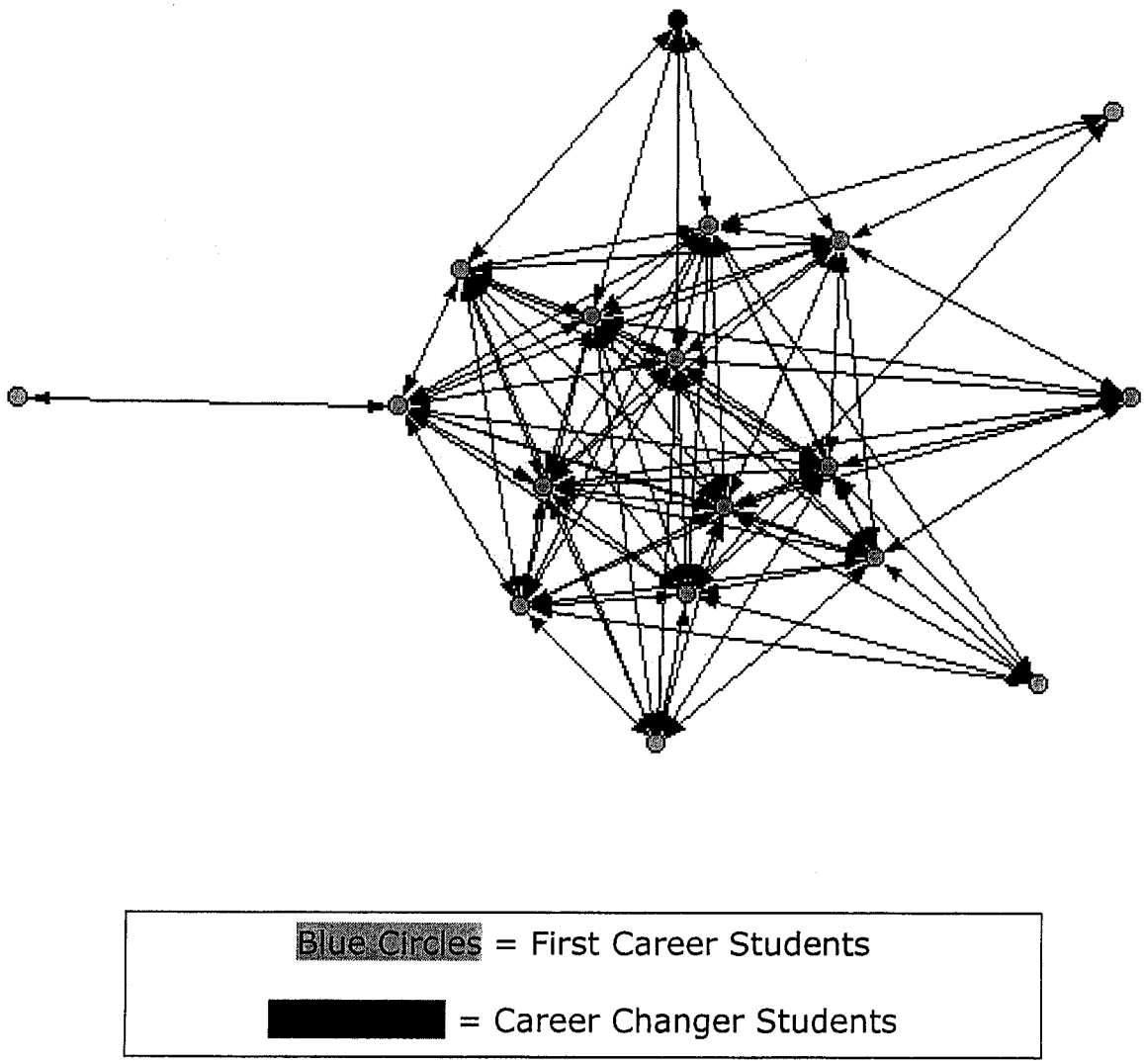
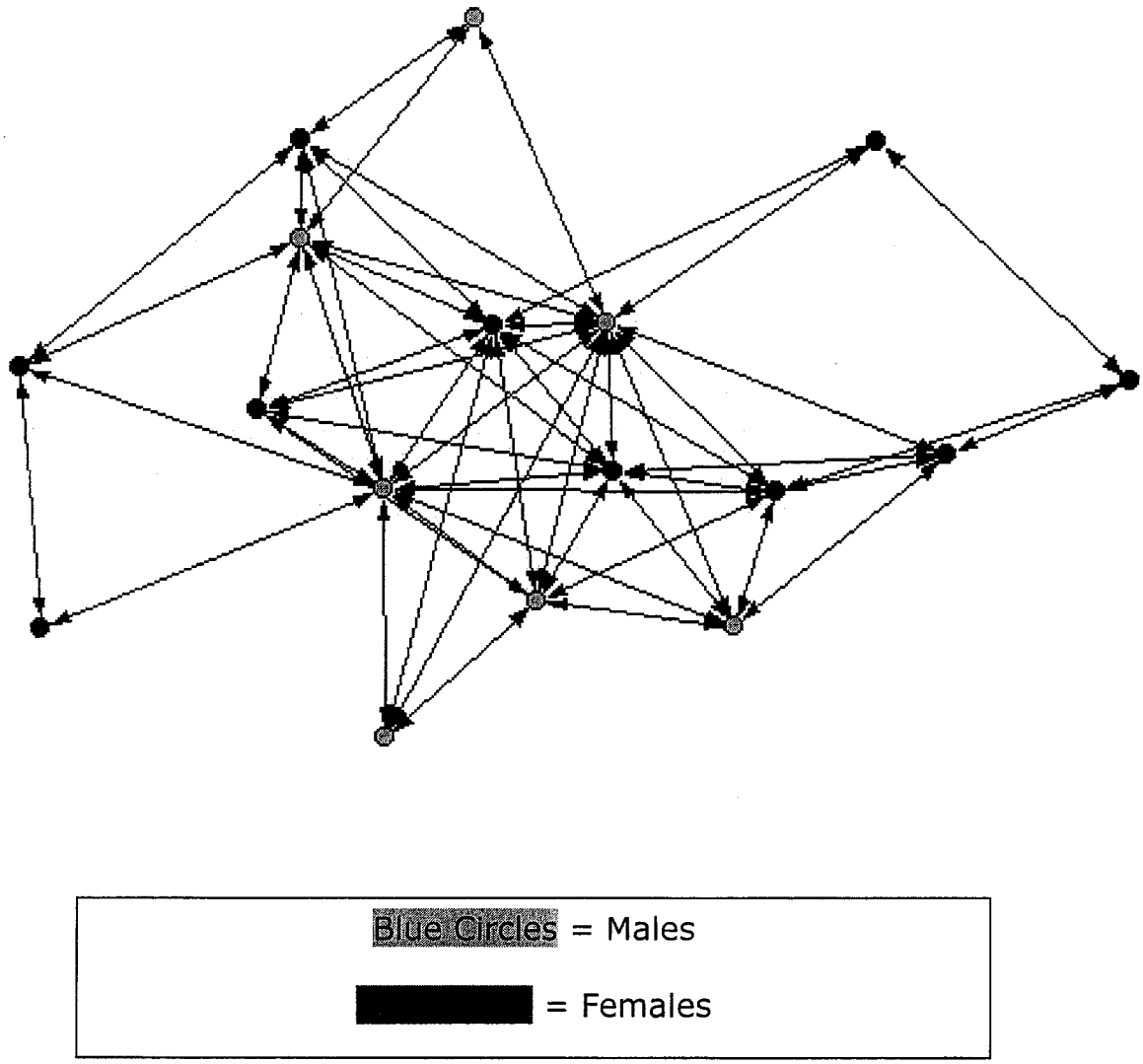


Figure 10.



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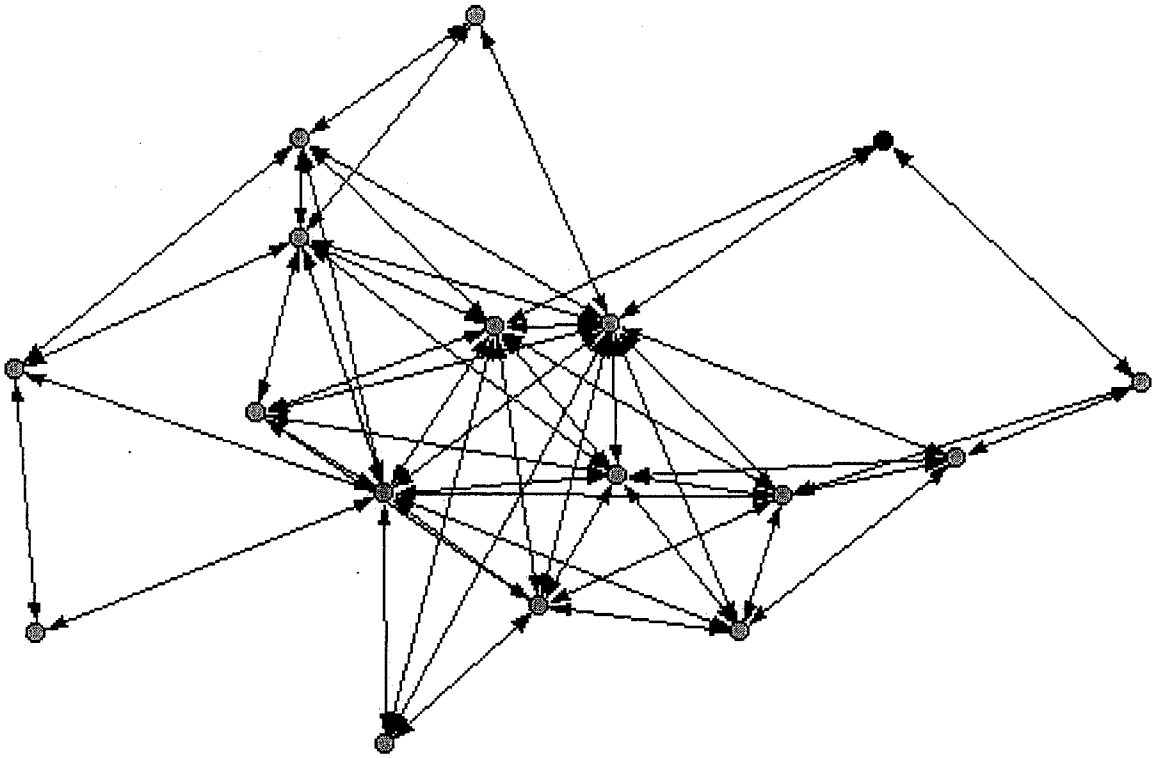

Blue Circles = First Career Students

= Career Changer Students

Figure 12.

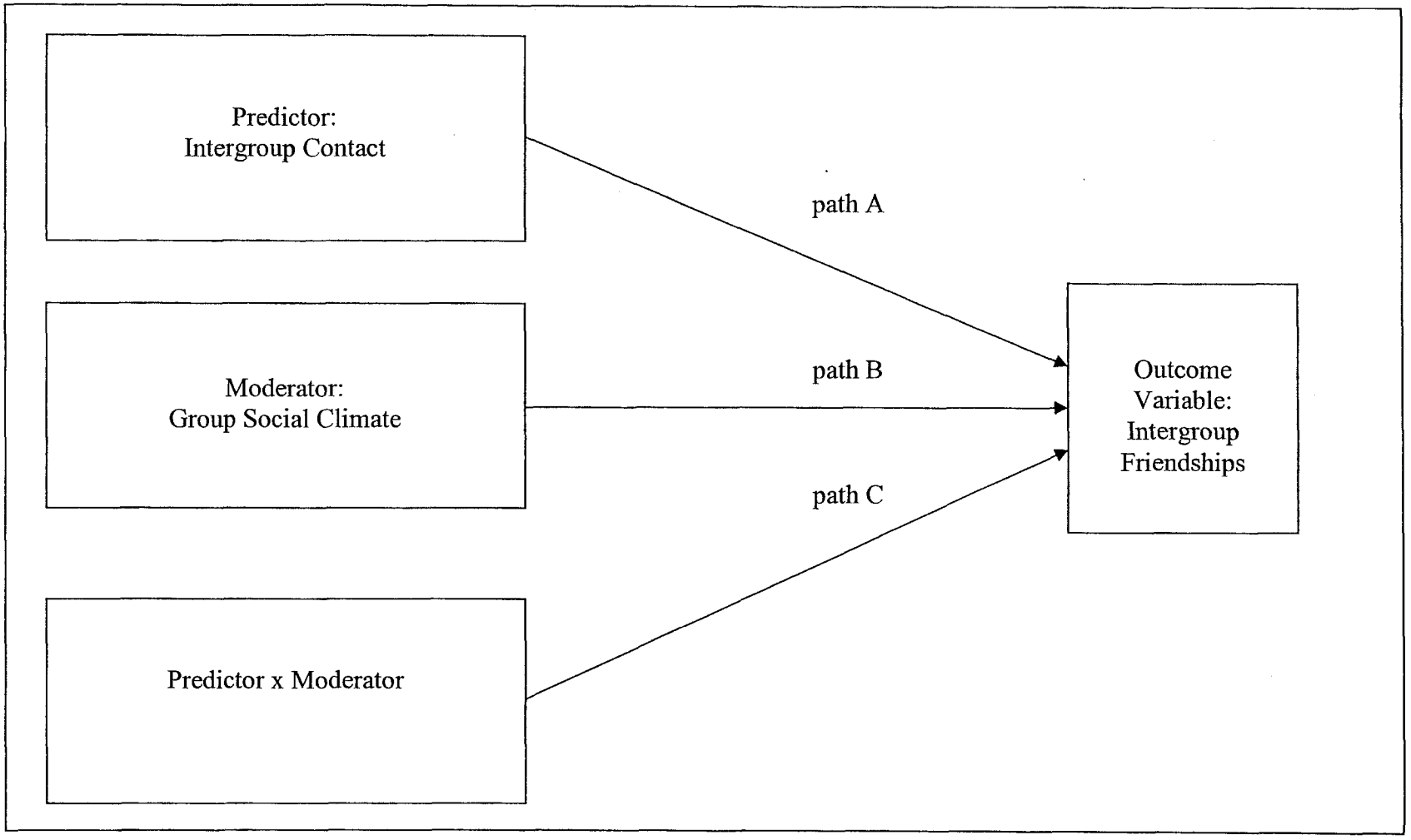

Figure 13.

TABLES

Table 1

Number of Questionnaires Completed by Stream

Completed Questionnaires	Number of Students	% of All Students	Stream 1	Stream 2	Stream 3
8	64	27%	18	15	31
7	64	27%	25	14	25
6	30	13%	11	11	8
5	23	10%	7	12	4
4	19	8%	3	8	8
3	15	6%	4	6	5
2	15	6%	9	2	4
1	3	1%	1	0	2
0	3	1%	1	1	1
Total Students	236		79	69	88
Questionnaires	1,409		463	398	623
M	5.97		5.86	5.77	6.23
SD	2.04		2.13	1.86	2.08

Table 2

Participation Rate by Stream and Student Demographics

		Stream					Specialty	
Questionnaire	Total	1	2	3	Male	Female	Culinary	Baking
Orientation	73%	49%**	83%**	84%**	70%	76%	72%	73%
B3	84%	80%	83%	89%	82%	87%	83%	88%
B5	78%	71%	85%	79%	78%	80%	79%	76%
C3	65%	67%	58%	68%	66%	62%	63%	79%
D3	67%	72%	65%	64%	72%*	58%*	65%	76%
E3	69%	71%	61%	75%	72%	64%	67%*	85%*
F2	80%	85%*	70%*	83%*	79%	81%	79%	85%
G2	81%	90%*	73%*	81%*	80%	83%	80%	88%
Total	236	79	69	88	152	84	203	33

* $p < .05$, ** $p < .01$ based upon χ^2 test of differences in proportions

Table 5

Demographic Profile of the Sample

	Total
N	236
Male	64%
Female	36%
Age	
Mean	23.90
18-21	51%
22-27	31%
28-55	18%
Prior Experience	
Mean	9.43
Low Experience (0-9)	47%
High Experience (10-19)	53%
Career Changer	9%

** $p < .01$ based upon χ^2 test of differences in proportions

Table 3 (continued)

Additional Demographic Characteristics by Specialty

	Total
N	144
Prior Education	
High School Graduate	47%
Some College Classes	33%
Associate's Degree	3%
Bachelor's Degree	15%
Graduate Degree	1%
Race/Ethnicity	
Asian/Pacific Island	9%
Black	1%
Hispanic	9%
White	79%
Other	2%
Nation of Origin	
U.S.	89%
Other	11%

Table 4

Comparison of Participants Selected for Statistical Analyses with All Participants in Selected Streams

Student Characteristic	All Students in Stream	Questionnaires Completed 7 – 8	0 - 6
Sex			
Male	64%	63%	66%
Female	36%	37%	34%
Specialty			
Culinary	86%	84%	89%
Baking	14%	16%	11%
Career Status			
First Career	91%	92%	89%
Career Changers	9%	8%	11%
Stream			
1	34%	33%*	33%*
2	29%	23%*	37%*
3	37%	44%*	30%*
n =	236	128	108

* $p < .05$ based upon χ^2 test of differences in proportions

Table 5

Means, Standard Deviations, Ranges, and Reliability Coefficients of the Study's Scales

Scale[1]	n	Mean	SD	Range	Reliability
Contextual Properties					
Status Equality (9)[2]					
B3	165	2.97	0.48	1.78 - 4.00	.76
D3	152	2.61	0.51	1.11 - 4.00	.78
Cooperation (4)					
B5	152	2.79	0.35	1.71 - 3.71	.68
D3	152	2.85	0.55	1.00 - 4.00	.71
Competition (5)					
B5	152	3.02	0.46	2.00 - 4.00	.65
D3	153	3.13	0.50	1.60 - 4.00	.67
Experienced Group Conflict (11)					
E3	155	2.48	0.98	1.00 - 5.00	.83
Attributed Group Conflict (11)					
E3	155	2.48	0.98	1.00 - 5.00	.83
Group Task Cohesion (4)					
D3	46	5.07	1.38	1.00 - 7.00	.92
E3	53	5.38	1.44	1.00 - 7.00	.93
F2	88	5.14	1.46	1.00 - 7.00	.93
F2	154	4.99	1.24	1.00 - 7.00	.75

[1] Scales are listed in order of the study's major constructs. Questionnaire in which the data were collected for the scale is shown below the scale name. If collected more than once, data for each collection point are shown.
[2] The number of items in each scale is shown in parenthesis after the scale's name.

Table 5 (continued)

Means, Standard Deviations, Ranges, and Reliability Coefficients of the Study's Scales

Scale[1]	n	Mean	SD	Range	Reliability
Contextual Properties					
Group Social Cohesion (3)					
D3	153	5.01	1.31	1.00 - 7.00	.72
E3	163	5.04	1.27	1.33 - 7.00	.74
Friendship Formation[2]					
Num. Friends by Nomination (8)					
B3	165	5.95	2.36	0.00 - 8.00	--
C3	152	5.89	2.16	0.00 - 8.00	--
F2	155	6.46	2.10	0.00 - 8.00	--
Friendship Depth by Nomination (8)					
B3	159	4.21	1.11	1.00 - 7.00	--
C3	147	4.97	1.02	1.43 - 7.00	--
F2	151	5.31	0.95	1.00 - 7.00	--
Intergroup Perception[3]					
Positive Affect: Male Culinary Students (3)					
OR	86	2.11	0.63	0.00 - 3.00	.77
G2	159	2.08	0.74	0.00 - 3.00	.87

[1] Scales are listed in order of the study's major constructs. Questionnaire in which the data were collected for the scale is shown below the scale name. If collected more than once, data for each collection point are shown.
[2] The number of items in each scale is shown in parenthesis after the scale's name.
[3] Participants who completed the OR questionnaire on January 3, 2002 were administered a different set of affect items. As a result, data for the Affective items in the OR questionnaire do not include these responses.

Table 5 (continued)

Means, Standard Deviations, Ranges, and Reliability Coefficients of the Study's Scales

Scale[1]	n	Mean	SD	Range	Reliability
Intergroup Perception[2,3] (continued)					
Positive Affect: Female Culinary Students (3)					
OR	86	2.22	0.70	0.00 - 3.00	.83
G2	158	2.20	0.77	0.00 - 3.00	.87
Positive Affect: Male Pastry Students (3)					
OR	84	2.20	0.66	0.33 - 3.00	.83
G2	152	1.89	0.90	0.00 - 3.00	.93
Positive Affect: Female Pastry Students (3)					
OR	86	2.24	0.76	0.00 - 3.00	.90
G2	151	2.02	0.91	0.00 - 3.00	.93
Positive Affect: First Career Students[4] (3)					
OR	86	2.27	0.67	0.00 - 3.00	.78
Positive Affect: Career Changers (3)					
OR	87	2.26	0.62	0.00 - 3.00	.77
G2	159	2.13	0.83	0.00 - 3.00	.88
Negative Affect: Male Culinary Students (3)					
OR	86	0.68	0.71	0.00 - 2.67	.81
G2	160	0.61	0.70	0.00 - 3.00	.79

[1] Scales are listed in order of the study's major constructs. Questionnaire in which the data were collected for the scale is shown below the scale name. If collected more than once, data for each collection point are shown.
[2] The number of items in each scale is shown in parenthesis after the scale's name.
[3] Participants who completed the OR questionnaire on January 3, 2002 were administered a different set of affect items. As a result, data for the Affective items in the OR questionnaire do not include these responses.
[4] Affect items for first career students were not collected in the G2 questionnaire.

Table 5 (continued)

Means, Standard Deviations, Ranges, and Reliability Coefficients of the Study's Scales

Scale[1]	n	Mean	SD	Range	Reliability
Intergroup Perception[2,3] (continued)					
Negative Affect: Female Culinary Students (3)					
OR	85	0.63	0.73	0.00 - 2.67	.88
G2	157	0.58	0.71	0.00 - 3.00	.83
Negative Affect: Male Pastry Students (3)					
OR	84	0.60	0.68	0.00 - 2.67	.86
G2	152	0.38	0.59	0.00 - 2.00	.87
Negative Affect: Female Pastry Students (3)					
OR	85	0.56	0.67	0.00 - 2.67	.84
G2	151	0.41	0.63	0.00 - 2.33	.85
Negative Affect: First Career Students[4] (3)					
OR	86	0.60	0.63	0.00 - 2.50	.74
Negative Affect: Career Changers (3)					
OR	86	0.58	0.66	0.00 - 3.00	.81
G2	159	0.55	0.74	0.00 - 3.00	.81
Group Beliefs: Male Culinary Students (5)					
OR	140	2.72	0.69	0.85 - 4.00	.85
G2	150	2.78	0.74	0.00 - 4.00	.92

[1] Scales are listed in order of the study's major constructs. Questionnaire in which the data were collected for the scale is shown below the scale name. If collected more than once, data for each collection point are shown.
[2] The number of items in each scale is shown in parenthesis after the scale's name.
[3] Participants who completed the OR questionnaire on January 3, 2002 were administered a different set of affect items. As a result, data for the Affective items in the OR questionnaire do not include these responses.
[4] Affect items for first career students were not collected in the G2 questionnaire.

Table 5 (continued)

Means, Standard Deviations, Ranges, and Reliability Coefficients of the Study's Scales

Scale[1]	n	Mean	SD	Range	Reliability
Intergroup Perception[2,3] (continued)					
OR	137	2.72	0.70	0.00 - 4.00	.89
G2	157	2.62	0.79	0.20 - 4.00	.91
Group Beliefs: Male Pastry Students (5)					
OR	137	2.68	0.62	0.20 - 4.00	.84
G2	145	2.46	0.91	0.00 - 4.00	.95
OR	135	2.77	0.62	1.20 - 4.00	.86
Group Beliefs: Female Pastry Students (5)					
G2	148	2.50	0.90	0.00 - 4.00	.94
Group Beliefs: First Career Students[4] (5)					
OR	140	2.64	0.73	0.00 - 4.00	.87
Group Beliefs: Career Changer (5)					
OR	138	2.61	0.68	0.80 - 4.00	.87
G2	159	2.33	0.78	0.00 - 4.00	.85

[1] Scales are listed in order of the study's major constructs. Questionnaire in which the data were collected for the scale is shown below the scale name. If collected more than once, data for each collection point are shown.
[2] The number of items in each scale is shown in parenthesis after the scale's name.
[3] Participants who completed the OR questionnaire on January 3, 2002 were administered a different set of affect items. As a result, data for the Affective items in the OR questionnaire do not include these responses.
[4] Belief items for first career students were not collected in the G2 questionnaire.

Table 6

Distribution of Demographic Characteristics by Specialty

	Total	Culinary	Baking
N	236	203	33
Male	64%	70%**	30%**
Female	36%	30%**	70%**
Age			
Mean	23.90	24.01	23.18
18-21	51%	47%**	73%**
22-27	31%	35%**	9%**
28-55	18%	18%**	18%**
Prior Experience			
Mean	9.43	10.02**	6.03**
Low Experience (0-9)	47%	42%**	79%**
High Experience (10-19)	53%	58%**	21%**
Career Changer	9%	8%	15%

** $p < .01$ based upon χ^2 test of differences in proportions

Table 7

Additional Demographic Characteristics by Specialty

	Total	Culinary	Baking
N	144	117	27
Prior Education			
High School Graduate	47%	44%	59%
Some College Classes	33%	34%	30%
Associate's Degree	3%	3%	0%
Bachelor's Degree	15%	17%	7%
Graduate Degree	1%	1%	4%
Race/Ethnicity			
Asian/Pacific Island	9%	9%	11%
Black	1%	1%	0%
Hispanic	9%	9%	8%
White	79%	78%	81%
Other	2%	3%	0%
Nation of Origin			
U.S.	89%	88%	91%
Other	11%	12%	9%

Table 7

Attitudes Toward Male and Female Chef Students at Orientation

	Attitudes Toward				
Participant Gender (M-F)[1]	Male Students		Female Students		
Male Chef Students	Mean	SE	Mean	SE	Diff
Positive Beliefs	2.73	.70	2.62	.77	-.11*
Positive Feelings[2]	2.13	.70	2.19	.74	+.06
Negative Feelings	.63	.63	.67	.69	+.04

	Attitudes Toward				
Participant Specialty (C-B)	Culinary Students		Baking Students		
Culinary Students	Mean	SE	Mean	SE	Diff
Positive Beliefs	2.76	.64	2.73	.59	+.03
Positive Feelings	2.21	.58	2.21	.67	.00
Negative Feelings	.61	.65	.57	.63	+.04

	Attitudes Toward				
Participant Career Status (FC-CC)	First Careers		Career Changers		
First Career Students	Mean	SE	Mean	SE	Diff
Positive Beliefs	2.69	.71	2.61	.74	+.08
Positive Feelings	2.30	.66	2.28	.65	+.02
Negative Feelings	.57	.63	.57	.60	.00

* $p < .05$ based upon a paired samples t-test.

[1] Attitudes toward male and female chef students were based on attitude items *within the* participant's specialty. Attitudes toward student specialty were collapsed across gender.
[2] Participants who completed the OR questionnaire on January 3, 2002 were administered a different set of affect items. As a result, data for the Affective items in the OR questionnaire do not include these responses.

Table 8

Average Change in Attitudes Towards the Study's Outgroups[1]

	Attitudes Toward			
Participant Gender	Male Students		Female Students	
Male Chef Students	Mean Δ	SE	Mean Δ	SE
Positive Beliefs	.02	.12	-.07	.10
Positive Feelings[2]	.04	.10	.11	.13
Negative Feelings	-.01	.11	.02	.12

	Attitudes Toward			
Participant Specialty	Culinary Students		Baking Students	
Culinary Students	Mean Δ	SE	Mean Δ	SE
Positive Beliefs	-.08	.10	-.27**	.09
Positive Feelings	.00	.08	-.12	.10
Negative Feelings	-.01	.09	-.09	.08

	Attitudes Toward	
Participant Career Status	Career Changers	
First Career Students	Mean Δ	SE
Positive Beliefs	-.31**	.07
Positive Feelings	-.07	.09
Negative Feelings	.04	.09

** $p < .01$ based upon single sample t-test that the change score is significantly different from zero.

[1] Change is calculated by subtracting Orientation score from G block scores.
[2] Participants who completed the OR questionnaire on January 3, 2002 were administered a different set of affect items. As a result, data for the Affective items in the OR questionnaire do not include these responses.

Table 9

Influence of Contact and Friendship Formation on Attitude Change toward Female Students[1]

	Intergroup Contact			
Male Students	b	SE	ES	df Level 1 (2)
Positive Beliefs about Females	.08*	.03	.06	82 (12)
Positive Feelings toward Females	-.02	.05	.00	53 (12)
Negative Feelings toward Females	.04	.04	.00	53 (83)

Male Friendships with Females	Intergroup Contact			
in Kitchen Group	b	SE	ES	df Level 1 (2)
Contact in Kitchen Class	.57**	.07	.47	105 (12)

Attitudes Toward	Intergroup Contact		Intergroup Fships			
Female Students	b	SE	b	SE	ES^2	dfLevel 1 (2)
Positive Beliefs	.05	.05	.18	.01	.00	64 (12)
Positive Feelings	-.01	.07	-.04	-.01	.00	39 (12)
Negative Feelings	.06	.06	.22	-.06	.02	39 (12)

* $p < .05$, ** $p < .01$ based upon t-test of regression coefficient in a two-level multiple regression model.

[1] Change is calculated by subtracting Orientation score from G block scores.
[2] Effect size associated with the addition of intergroup friendships as predictor to the model.

Table 10

Influence of Contact and Friendship Formation on Attitude Change toward Baking Students[1]

	Intergroup Contact			
Culinary Students	b	SE	ES	df Level 1 (2)
Contact in Gastronomy Class				
Positive Beliefs about Bakers	-.09	.19	.00	105 (12)
Positive Feelings toward Bakers	.09	.20	.00	71 (12)
Negative Feelings toward Bakers	-.08	.17	.00	73 (12)
Contact in Writing Class				
Positive Beliefs about Bakers	.42	.27	.02	105 (12)
Positive Feelings toward Bakers	.15	.26	.00	74 (12)
Negative Feelings toward Bakers	-.33	.21	.03	73 (12)
	Intergroup Contact			
Culinary Friendships with Bakers	b	SE	ES	df Level 1 (2)
Contact in Gastronomy Class	.35	.54	.05	124 (12)
Contact in Gastronomy Class	.52*	.23	.05	124 (12)

* $p < .05$, ** $p < .01$ based upon t-test of regression coefficient in a two-level multiple regression model.

[1] Change is calculated by subtracting Orientation score from G block scores.

Table 10 (continued)

Influence of Contact and Friendship Formation on Attitude Change toward Baking Students[1]

Attitudes Toward	Intergroup Contact		Intergroup Fships			
Baking Students	b	SE	b	SE	ES^2	dfLevel 1 (2)
Gastronomy Contact						
Positive Beliefs	-.19	.19	-.10	.05	.01	92 (12)
Positive Feelings	.18	.22	.10	.08	.09	51 (12)
Negative Feelings	.12	.23	.08	.06	.07	51 (12)
Writing Class Contact						
Positive Beliefs	.38	.29	.14	-.01	.02	92 (12)
Positive Feelings	.34	.29	.13	.06	.01	62 (12)
Negative Feelings	-.23	.28	.11	-.32**	.00	61 (12)

[1] Change is calculated by subtracting Orientation score from G block scores.
[2] Effect size associated with the additional of term for intergroup friendships to the model.

Table 11

Influence of Contact and Friendship Formation on Attitude Change toward Career Changer Students[1]

First Career Students	Intergroup Contact b	SE	ES	df Level 1 (2)
Posit. Beliefs about Car. Changers	-.15*	.07	.04	124 (12)
Posit. Feelings toward Car. Changers	.04	.10	.00	83 (12)
Neg. Feelings toward Car. Changers	.03	.10	.00	83 (12)

First Career Friendships with Career Changers	Intergroup Contact b	SE	ES	df Level 1 (2)
Contact in Kitchen Class	.48**	.08	.37	143 (12)

Attitudes Toward	Intergroup Contact		Intergroup Fships			
Career Changers	b	SE	b	SE	ES^2	dfLevel 1 (2)
Positive Beliefs	-.14	.10	-.01	.12	.00	97 (12)
Positive Feelings	-.20	.16	.13	.17	.01	62 (12)
Negative Feelings	.33	.17	-.19	.17	.02	62 (12)

* $p < .05$, ** $p < .01$ based upon t-test of regression coefficient in a two-level multiple regression model.

[1] Change is calculated by subtracting Orientation score from G block scores.
[2] Effect size associated with the additional of term for intergroup friendships to the model.

Table 12

Intergroup Friendships as Predictor of Attitudes Change

	Intergroup Friendships			
	b	SE	ES	df Level 1 (2)
Attitudes Toward Female Students				
Positive Beliefs	.05	.05	.02	64 (12)
Positive Feelings	-.01	.06	.00	39 (12)
Negative Feelings	-.01	.05	.00	39 (12)
Attitudes Toward Baking Students				
Positive Beliefs	.02	.12	.00	92 (12)
Positive Feelings	.10	.15	.00	62 (12)
Negative Feelings	-.32*	.13	.06	61 (12)
Attitudes Toward Career Changers				
Positive Beliefs	-.10	.10	.01	97 (12)
Positive Feelings	-.01	.14	.00	62 (12)
Negative Feelings	.01	.14	.00	62 (12)

* $p < .05$ based upon t-test of coefficient in a two-level multiple regression model.

Table 13

Ingroup-Outgroup Differences in Individual Characteristics

			Culinary		Baking	
Characteristics	Males	Females	Males	Females	Males	Females
Age						
Mean Age	23.2 [a]	25.0 [b]	23.1 [a]	26.1 [b]	25.4	22.3
Age 18-21	48%	54%	48%	44%	60%	78%
Prior Experience	10.6 [a]	7.5 [b]	10.8 [a]	8.2 [b]	6.9	5.7
Grades						
D Block Skills	3.25	3.24	3.23	3.20	3.46	3.33
E Block Skills	3.14	3.22	3.10	3.05	3.66	3.65
F Block Skills	3.25	3.12	3.21 [a]	2.97 [b]	3.66	3.50

Note: Subscripts indicate a significant difference ($p < .05$) between groups based on either an independent samples t-test or X^2 test of difference in proportions.

Table 13 (continued)

Ingroup-Outgroup Differences in Individual Characteristics

			Career Status		Age		
Characteristics	Culinary	Baking	First	Changer	18-21	22-27	28+
Age							
Mean Age	24.0	23.2	22.34 [a]	37.8 [b]	--	--	--
Age 18-21	47% [a]	73% [b]	56%	0%	--	--	--
Experience	10.0 [a]	6.0 [b]	9.9 [a]	5.0 [b]	8.1 [a]	11.3 [b]	9.3 [a]
Grades							
D Block Skills	3.22	3.37	3.24	3.18	3.19	3.32	3.26
E Block Skills	3.09 [a]	3.65 [b]	3.18	3.04	3.15	3.20	3.13
F Block Skills	3.14 [a]	3.55 [b]	3.21	3.15	3.19	3.22	3.18

Note: Subscripts indicate a significant difference ($p < .05$) between groups based on either an independent samples t-test or X^2 test of difference in proportions.

Table 14

Closeness Centrality among the Study's Outgroups

Outgroup	Mean	SE	N	F
Gender				
Male Students	85.1	12.7	36	1.09
Female Students	81.8	12.5	30	
Specialty				
Culinary Students	82.5	12.9	50	1.51
Baking Students	86.9	11.4	16	
Career Status				
First Career Students	84.4	12.0	61	3.84*
Career Changer Students	73.2	16.5	5	
Age				
Less than 28	84.4	12.3	57	1.90
28 or older	78.2	13.8	9	

* $p < .05$ based upon an oneway ANOVA.

Table 15

Characteristics of Students "Who Don't Fit In"

	Total	Culinary Groups A	Culinary Groups B	Baking Group B
Number answering question (n =)	92	13	10	12
Shy	17%	8%	8%	50%
Older Students	16%	39%	--	25%
Know It All	15%	15%	15%	--
Not Committed/Passionate	13%	8%	8%	8%
Not Assertive	13%	8%	--	17%
No Prior Experience	12%	--	8%	--
International	10%	31%	8%	--
Not Smart/Don't Study	10%	--	8%	17%
Don't Carry Share of Work	9%	23%	8%	8%
Younger Students	5%	8%	--	8%
Poor Social Skills	3%	--	--	--
Slow: Hold Back Group	3%	8%	15%	--
Complain Too Much	2%	15%	--	--
OTHER	12%	8%	24%	8%

Note: Percentage of responses reported. Multiple responses were permitted. A total of 92 students in 10 skills kitchen groups answered the question.

Table 16

Change in Positive Beliefs toward Career Changers as a Result of Intergroup Contact

	Positive Beliefs			
Participant Age	b	SE	ES	df Level 1 (2)
Students aged 18-21				
Career Changer Contact	-.20*	.10	.04	71 (12)
Aged 28+ Contact	-.10†	.06	.22	42 (12)
Students aged 22-28				
Career Changer Contact	-.25*	.10	.06	71 (12)
Aged 28+ Contact	-.18**	.05	.16	42 (12)

† $p < .10$, * $p < .05$, ** $p < .01$ based upon a t-test of the regression coefficient in a two-level multiple regression.

Table 17

Contact as Predictor of Friendships within the First Semester Kitchen Group[1]

	Ingroup Friendships				Outgroup Friendships			
	Friendships with Males				Friendships with Females			
Male Students	b	SE	ES	df Level 1 (2)	b	SE	ES	df Level 1 (2)
C Block	.54**	.14	.19	87 (12)	.61**	.10	.49	92 (12)
E Block	.61**	.12	.21	101 (12)	.57**	.07	.47	105 (12)
	Friendships with First Careers				Friendships with Career Changers			
Male Students	b	SE	ES	df Level 1 (2)	b	SE	ES	df Level 1 (2)
C Block	.75**	.23	.10	123 (12)	.30**	.07	.22	128 (12)
E Block	.76**	.22	.09	139 (12)	.48**	.08	.37	143 (12)

* $p < .05$, ** $p < .01$

[1] Number of ingroup/outgroup students within kitchen group.

Table 18

Proportion of Friendships by Source

B Block	
Proportion of friends within same entering stream	76%
Proportion of friends within same Gastronomy class	65%
C Block	
Proportion of friends within same Gastronomy class	68%
Proportion of friends within first semester kitchen group	58%
F Block	
Proportion of friends within same Gastronomy class	68%
Proportion of friends within second semester kitchen group	57%

Table 19

Proportion of Friendships with Gastronomy Classmates

		Gender		Specialty	
	Total	Ingroup	Outgroup	Ingroup	Outgroup
B Block	65%	63%	68%	68%*	53%*
C Block	68%	70%	60%	70%*	60%*
F Block	68%	68%	67%	73%*	38%*

* $p < .05$ based upon Chi-Square tests of differences in proportions

Table 20

Change in Number of Friends Over Time by Gender[1]

	Number of Friends				
	b	SE	Δ-2LL[2]	ES	df Level 1 (2)
Step 1: Time Only			--	.01	522 (234)
Constant	5.96	.14			
Time	.25**	.08			
Step 2: Student Gender			-1	.00	521 (234)
Constant	5.86	.17			
Time	.26**	.08			
Sex	.27	.25			
Step 3: Interaction with Time			-1	.00	520 (234)
Constant	5.83	.17			
Time	.29**	.10			
Sex	.36	.29			
Sex x Time	-.09	.16			

** $p < .01$

[1] Number of nominated friends can range from 0 to 8.
[2] Change in –2Log Likelihood from previous step

Table 21

Change in Number of Friends Over Time by Specialty[1]

	Number of Friends				
	b	SE	Δ-2LL[2]	ES	df Level 1 (2)
Step 1: Time Only			--	.01	522 (234)
Constant	5.96	.14			
Time	.25**	.08			
Step 2: Student Specialty			0	.00	521 (234)
Constant	5.94	.15			
Time	.25**	.08			
Baking	.15	.34			
Step 3: Interaction with Time			-1	.00	520 (234)
Constant	5.91	.15			
Time	.29**	.08			
Baking	.36	.40			
Baking x Time	-.21	.21			

** $p < .01$

[1] Number of nominated friends can range from 0 to 8.
[2] Change in –2Log Likelihood from previous step

Table 22

Change in Number of Friends Over Time by Career Status[1]

	Number of Friends				
	b	SE	Δ-2LL[2]	ES	df Level 1 (2)
Step 1: Time Only			--	.01	522 (234)
Constant	5.96	.14			
Time	.25**	.08			
Step 2: Student Career Status			-5*	.02	521 (234)
Constant	6.04	.14			
Time	.26**	.08			
Career Changer	-.96*	.43			
Step 3: Interaction with Time			0	.00	520 (234)
Constant	6.04	.15			
Time	.26**	.08			
Career Changer	-.96†	.51			
Career Changer x Time	-.01	.28			

† p < .10, * p < .05, ** p < .01

[1] Number of nominated friends can range from 0 to 8.
[2] Change in –2Log Likelihood from previous step

Table 23

Number of Gender Ingroup/Outgroup Friendships[1]

	All Friendships	Friendship by Gender		Male Students		Female Students	
		Ingroup	Outgroup	Ingroup	Outgroup	Ingroup	Outgroup
B Block							
	6.09	3.73	2.29	4.14	1.76	3.01	3.18
	(2.20)	(1.85)	(1.72)	(1.91)	(1.43)	(1.51)	(1.80)
C Block							
	6.06	3.75	2.31	4.17	1.70	2.92	3.51
	(1.95	(1.75)	(1.77)	(1.70)	(1.45)	(1.54)	(1.75)
F Block							
	6.59	4.23	2.31	4.74	1.73	3.31	3.35
	(1.89)	(1.89)	(1.73)	(1.82)	(1.42)	(1.68)	(1.76)

[1] Number of nominated friends can range from 0 to 8.

Table 24

Number of Gender Ingroup/Outgroup Friendships Over Time and by Student Gender

	Gender Ingroup Friendships					Gender Outgroup Friendships				
	b	SE	ES	Δ-2LL[1]	df 1 (2)	b	SE	ES	Δ-2LL	df 1 (2)
Step 1: Time Only										
Constant	3.66	.13				2.23	.12			
Time	.21**	.08				.05	.07			
			.01	--	521 (235)			.00	--	519 (235)
Step 2: Student Gender and Interaction										
Constant	4.05	.15				1.71	.13			
Time	.28**	.09				.02	.07			
Sex	-1.10**	.25				1.49**	.22			
Sex x Time	-.18	.14				.09	.12			
			.11	-164**	521 (234)			.19	-60**	518 (234)

** $p < .01$

[1] Change in –2Log Likelihood from previous model step

Table 25

Number of Specialty Ingroup/Outgroup Friendships

	All Friendships	Friendship by Specialty		Culinary Students		Baking Students	
		Ingroup	Outgroup	Ingroup	Outgroup	Ingroup	Outgroup
B Block							
	6.09	4.98	1.04	5.44	0.53	2.15	4.15
	(2.20)	(2.37)	(1.64)	(2.12)	(0.85)	(1.75)	(1.86)
C Block							
	6.06	5.01	0.99	5.51	0.43	2.37	3.92
	(1.95)	(2.29	(1.75)	(1.97)	(0.73)	(2.06)	(2.47)
F Block							
	6.59	5.68	0.84	6.10	0.45	3.11	3.19
	(1.89)	(2.11	(1.40)	(1.88)	(0.80)	(1.56)	(1.90)

Table 26

Number of Specialty Ingroup/Outgroup Friendships Over Time and by Student Specialty

	Specialty Ingroup Friendships					Specialty Outgroup Friendships				
	b	SE	ES	Δ-2LL[1]	df 1 (2)	b	SE	ES	Δ-2LL	df 1 (2)
Step 1: Time Only										
Constant	4.85	.15				1.04	.11			
Time	.34**	.08				-.10	.04			
			.02	--	521 (235)			.00	--	519 (235)
Step 2: Student Specialty and Interaction										
Constant	5.32	.15				.52	.08			
Time	.33**	.08				-.05	.05			
Specialty	-3.29**	.39				3.72**	.21			
Specialty x Time	.12	.22				-.35**	.12			
			.21	-79**	520 (234)			.55	-225**	518 (234)

** $p < .01$

[1] Change in –2Log Likelihood from previous model step

Table 27

Friendship Depth over Time by Gender

	b	SE	Δ-2LL[1]	ES	df Level 1 (2)
Step 1: Time Only			--	.00	3248 (235)
Constant	5.32	.07			
Time	-.10**	.03			
Step 2: Characteristic			-1	.00	3248 (234)
Constant	5.28	.08			
Time	-.10**	.03			
Female	.12	.12			
Step 3: Characteristic by Time			-4*	.00	3247 (234)
Constant	5.32	.08			
Time	-.14**	.03			
Female	.02	.14			
Female x Time	.11*	.06			

* $p < .05$, ** $p < .01$

[1] Change in –2Log Likelihood from previous model step

Table 28

Friendship Depth over Time by Specialty

	b	SE	Δ-2LL[1]	ES	df Level 1 (2)
Step 1: Time Only			--	.00	3248 (235)
Constant	5.32	.07			
Time	-.10**	.03			
Step 2: Characteristic			-1	.00	3248 (234)
Constant	5.28	.07			
Time	-.10**	.03			
Baking	.11	.17			
Step 3: Characteristic by Time			-9**	.00	3247 (234)
Constant	5.34	.07			
Time	-.14**	.03			
Baking	-.12	.19			
Baking x Time	.24**	.08			

* $p < .05$, ** $p < .01$

[1] Change in –2Log Likelihood from previous model step

Table 29

Friendship Depth over Time by Career Status

	b	SE	Δ-2LL[1]	ES	df Level 1 (2)
Step 1: Time Only			--	.00	3248 (235)
Constant	5.32	.07			
Time	-.10**	.03			
Step 2: Characteristic			-3	.00	3248 (234)
Constant	5.35	.07			
Time	-.10**	.03			
Career Changer	-.38	.22			
Step 3: Characteristic by Time			-4*	.00	3247 (234)
Constant	5.36	.07			
Time	-.11**	.03			
Career Changer	-.52*	.24			
Career Changer x Time	.13	.10			

* $p < .05$, ** $p < .01$

[1] Change in –2Log Likelihood from previous model step

Table 30

Individual and Group-Level Variation in Social Climate

	Grp. Level	SE	Ind. Level	SE	IC Corr.	df Ind (Grp)
Equality						
B block	.01	.01	.23	.02	.03	198 (13)
D block	.03*	.02	.23	.03	.13	156 (13)
Cooperation						
B block	.00	.00	.29	.03	.00	185 (13)
D block	.03*	.02	.27	.03	.09	156 (13)
Competition						
B block	.00	.01	.21	.02	.00	183 (13)
D block	.01	.01	.23	.03	.02	157 (13)
Conflict						
E block	0.13**	.07	.76	.09	.14	155 (13)
Task Cohesion						
D/E block	.19**	.10	.89	.10	.17	179 (13)
Social Cohesion						
D/E block	.30**	.15	1.15	.13	.21	179 (13)

* $p < .05$, ** $p < .01$ based upon change in –2 Log Likelihood between model with one level model and a two-level model which includes variation at the group level.

Table 31

Changes in Social Climate Scores between B and D Blocks

	B Block	D Block	Change	t (df)
Equality				
M	2.98	2.62	-0.36	7.07** (137)
SD	.47	.52		
Cooperation				
M	2.93	2.81	-0.13	2.67** (130)
SD	.53	.53		
Competition				
M	3.05	3.13	+0.08	1.67† (130)
SD	.46	.46		

† $p < .10$, ** $p < .01$ based upon paired samples t-test.

Table 32

Effects of Social Climate on Outgroup Friendships: Male Friendships with Females[1]

	Group Social Climate		Individual Appraisal[2]				
Step	b	SE	b	SE	Δ-2LL[3]	ES	df Level 1 (2)
Equality							
1	-.94	2.08	--	--	-1	.01	94 (12)
2	-.92	2.08	.24	.39	0	.00	93 (12)
Cooperation							
1	.99	3.06	--	--	0	.01	94 (12)
2	1.11	2.17	.59	.35	-3	.01	93 (12)
Competition							
1	-.09	3.06	--	--	0	.00	94 (12)
2	-.11	3.07	-.20	.43	0	.00	93 (12)

[1] Number of nominated friends ranged from 0 to 8.
[2] Represents the deviation of an individual's climate score from that of the group
[3] Changes in –2 Log Likelihood from previous step

Table 32 (continued)

Effects of Social Climate on Outgroup Friendships: Male Friendships with Females[1]

	Group Social Climate		Individual Appraisal[2]				
Step	b	SE	b	SE	Δ-2LL[3]	ES	df Level 1 (2)
Conflict							
1	1.56	1.03	--	--	-2	.09	98 (12)
2	1.56	1.03	.01	.21	0	.00	97 (12)
Task Cohesion							
1	.63**	.18	--	--	-11**	.05	104 (12)
2	-.11	.98	.76	.99	-1	.02	103 (12)
Social Cohesion							
1	-.45	.83	--	--	0	.01	104 (12)
2	-.45	.81	.38*	.18	-4*	.05	103 (12)

* $p < .05$, ** $p < .01$

[1] Number of nominated friends ranged from 0 to 8.
[2] Represents the deviation of an individual's climate score from that of the group
[3] Changes in –2 Log Likelihood from previous step

Table 33 (continued)

Effects of Social Climate on Outgroup Friendships: First Career Friendships with Career Changers[1]

	Group Social Climate		Individual Appraisal[2]				
Step	b	SE	b	SE	Δ-2LL[3]	ES	df Level 1 (2)
Equality							
1	-1.11	.76	--	--	-3	.05	95 (12)
2	-1.11	.75	.12	.14	0	.03	94 (12)
Cooperation							
1	-1.36	.77	--	--	-3	.06	95 (12)
2	-1.35	.77	-.13	.15	-1	.01	94 (12)
Competition							
1	-.19	1.19	--	--	0	.00	124 (12)
2	-.19	1.19	-.13	.15	-1	.00	123 (12)

[1] Number of nominated friends ranged from 0 to 8.
[2] Represents the deviation of an individual's climate score from that of the group
[3] Changes in –2 Log Likelihood from previous step

Table 33 (continued)

Effects of Social Climate on Outgroup Friendships: First Career Friendships with Career Changers[1]

	Group Social Climate		Individual Appraisal[2]				
Step	b	SE	b	SE	Δ-2LL[3]	ES	df Level 1 (2)
Conflict							
1	.41	.38	--	--	-2	.03	134 (12)
2	.41	.38	-.01	.08	0	.00	133 (12)
Task Cohesion							
1	.12**	.06	--	--	-4*	.00	143 (12)
2	-.23	.35	.34	.35	0	.03	142 (12)
Social Cohesion							
1	-.33	.28	--	--	-1	.04	143 (12)
2	-.33	.28	.03	.06	0	.00	142 (12)

* $p < .05$, ** $p < .01$

[1] Number of nominated friends ranged from 0 to 8.
[2] Represents the deviation of an individual's climate score from that of the group
[3] Changes in –2 Log Likelihood from previous step

Table 34

Tests of Group and Individual Deviation Climate as Moderator of Gender Outgroup Friendships: Equality

		Model 1	Model 2	Model 3	Model 4
Contact					
	b	.52**	1.92	1.93	1.89
	SE	.09	1.30	1.30	1.29
Group Equality					
	b	-.77	2.37	2.40	2.31
	SE	1.09	3.10	3.11	3.09
Group Equality x Contact					
	b		-.55	-.55	-.54
	SE		.51	.51	.51
Deviation Equality					
	b			.21	.91
	SE			.39	.92
Deviation Equality x Contact					
	b				.13
	SE				.16
Δ-2LL[1]		-1	-1	0	-1
ES		.00	.01	.00	.01
df Level 1 (2)		94 (12)	94 (11)	93 (11)	92 (11)

* p < .05. ** < .01

[1] Change in –2Log Likelihood from previous model step

Table 34 (continued)

Tests of Group and Individual Deviation Climate as Moderator of Gender Outgroup Friendships: Cooperation

		Model 1	Model 2	Model 3	Model 4
Contact					
	b	.53**	1.82	1.71	1.36
	SE	.09	1.18	1.13	1.13
Group Cooperation					
	b	-.46	1.08	1.00	.47
	SE	1.14	1.80	1.72	1.73
Group Cooperation x Contact					
	b		-.46	-.41	-.28
	SE		.42	.40	.40
Deviation Cooperation					
	b			.71*	-.44
	SE			.35	.67
Deviation Cooperation x Contact					
	b				.25*
	SE				.13
Δ-2LL[1]		-1	-1	0	-1
ES		.00	.01	.05	.04
df Level 1 (2)		94 (12)	94 (11)	93 (11)	92 (11)

* $p < .05$. ** $< .01$

[1] Change in –2Log Likelihood from previous model step

Table 34 (continued)

Tests of Group and Individual Deviation Climate as Moderator of Gender Outgroup Friendships: Competition

		Model 1	Model 2	Model 3	Model 4
Contact					
	b	.54**	-2.63	-2.65	-2.45
	SE	.09	1.68	1.69	1.70
Group Competition					
	b	1.87	-2.53	-2.57	-2.36
	SE	1.52	2.68	2.70	2.71
Group Competition x Contact					
	b		1.03	1.03	.97
	SE		.54	.55	.55
Deviation Competition					
	b			-.12	-.98
	SE			.42	.97
Deviation Competition x Contact					
	b				.16
	SE				.16
Δ-2LL[1]		-2	-3	0	-1
ES		.02	.05	.00	.01
df Level 1 (2)		94 (12)	94 (11)	93 (11)	92 (11)

* p < .05. ** < .01

[1] Change in –2Log Likelihood from previous model step

Table 34 (continued)

Tests of Group and Individual Deviation Climate as Moderator of Gender Outgroup Friendships: Conflict

		Model 1	Model 2	Model 3	Model 4
Contact					
	b	.53*	.44	.44	.43
	SE	.06	.39	.39	.39
Group Conflict					
	b	1.18*	.97	.99	.95
	SE	.41	1.03	1.03	1.03
Group Conflict x Contact					
	b		.04	.04	.04
	SE		.16	.16	.16
Deviation Conflict					
	b			.03	-.09
	SE			.21	.39
Deviation Conflict x Contact					
	b				.03
	SE				.07
Δ-2LL[1]		-3	0	0	0
ES		.08	.00	.00	.00
df Level 1 (2)		95 (12)	95 (11)	94 (11)	93 (11)

* $p < .05$. ** $< .01$

[1] Change in –2Log Likelihood from previous model step

Table 34 (continued)

Tests of Group and Individual Deviation Climate as Moderator of Gender Outgroup Friendships: Task Cohesion

		Model 1	Model 2	Model 3	Model 4
Contact					
	b	.56**	1.21	.99	.84
	SE	.08	.38	.58	.59
Group Task Cohesion					
	b	.57**	.65**	.37	.29
	SE	1.09	.18	.61	.63
Group Task Cohesion x Contact					
	b		-.14	-.09	-.07
	SE		.08	.12	.12
Deviation Task Cohesion					
	b			.30	-1.02
	SE			.64	.069
Deviation Task Cohesion x Contact					
	b				.29*
	SE				.06
Δ-2LL[1]		-11	-3	0	-12
ES		.09	.04	.00	.18
df Level 1 (2)		104 (12)	104 (11)	103 (11)	102 (11)

* p < .05. ** < .01

[1] Change in –2Log Likelihood from previous model step

Table 34 (continued)

Tests of Group and Individual Deviation Climate as Moderator of Gender Outgroup Friendships: Social Cohesion

		Model 1	Model 2	Model 3	Model 4
Contact					
	b	.57**	.88	.92*	1.13*
	SE	.07	.50	.46	.47
Group Social Cohesion					
	b	-.23	.11	.17	.45
	SE	.37	.66	.59	.61
Group Social Cohesion x Contact					
	b		-.07	-.08	-.13
	SE		.10	.10	.10
Deviation Social Cohesion					
	b			.44**	-.35
	SE			.17	.32
Deviation Social Cohesion x Contact					
	b				.17**
	SE				.06
Δ-2LL[1]		-1	0	-6	-8
ES		.00	.00	.06	.04
df Level 1 (2)		104 (12)	104 (11)	103 (11)	102 (11)

* p < .05. ** < .01

[1] Change in –2Log Likelihood from previous model step

Table 35

Tests of Group and Individual Deviation Climate as Moderator of Career Changer Friendships: Equality

		Model 1	Model 2	Model 3	Model 4
Contact					
	b	.45**	.45**	.45**	.45**
	SE	.09	.09	.09	.09
Group Equality					
	b	-.30	-.30	-.31	-.30
	SE	.49	.51	.51	.51
Group Equality x Contact					
	b		.00	.01	.01
	SE		.01	.01	.01
Deviation Equality					
	b			.11	.19
	SE			.14	.25
Deviation Equality x Contact					
	b				-.05
	SE				.13
Δ-2LL[1]		0	0	0	-1
ES		.01	.00	.00	.00
df Level 1 (2)		94 (12)	94 (11)	93 (11)	92 (11)

* p < .05. ** < .01

[1] Change in –2Log Likelihood from previous model step

Table 35 (continued)

Tests of Group and Individual Deviation Climate as Moderator of Career Changer Friendships: Cooperation

		Model 1	Model 2	Model 3	Model 4
Contact					
	b	.45**	-1.33	-1.31	-1.34
	SE	.09	1.48	1.48	1.47
Group Cooperation					
	b	-.25	-1.13	-1.11	-1.15
	SE	.54	.89	.89	.88
Group Cooperation x Contact					
	b		.61	.61	.63
	SE		.51	.51	.50
Deviation Cooperation					
	b			.08	-.06
	SE			.13	.23
Deviation Cooperation x Contact					
	b				.08
	SE				.12
Δ-2LL[1]		0	-1	-1	0
ES		.01	.03	.01	.01
df Level 1 (2)		94 (12)	94 (11)	93 (11)	92 (11)

* $p < .05$. ** $< .01$

[1] Change in –2Log Likelihood from previous model step

Table 35 (continued)

Tests of Group and Individual Deviation Climate as Moderator of Career Changer Friendships: Competition

		Model 1	Model 2	Model 3	Model 4
Contact					
	b	.47**	3.19	3.10	3.11
	SE	.09	2.86	2.90	2.89
Group Competition					
	b	-.01	.90	.87	.87
	SE	1.06	1.16	1.17	1.17
Group Competition x Contact					
	b		-.88	-.85	-.85
	SE		.93	.94	.94
Deviation Competition					
	b			-.10	-.13
	SE			.15	.26
Deviation Competition x Contact					
	b				.02
	SE				.13
Δ-2LL[1]		0	0	-1	0
ES		.00	.02	.00	.00
df Level 1 (2)		123 (12)	123 (11)	122 (11)	121 (11)

* p < .05. ** < .01

[1] Change in –2Log Likelihood from previous model step

Table 35 (continued)

Tests of Group and Individual Deviation Climate as Moderator of Career Changer Friendships: Conflict

		Model 1	Model 2	Model 3	Model 4
Contact					
	b	.46**	.11	.12	.09
	SE	.08	.54	.54	.54
Group Conflict					
	b	.11	-.03	-.03	-.03
	SE	.21	.30	.30	.30
Group Conflict x Contact					
	b		.15	.15	.16
	SE		.23	.23	.23
Deviation Conflict					
	b			-.01	-.11
	SE			.08	.15
Deviation Conflict x Contact					
	b				.06
	SE				.08
Δ-2LL[1]		0	0	0	-1
ES		.00	.00	.00	.00
df Level 1 (2)		128 (12)	128 (11)	127 (11)	126 (11)

* p < .05. ** < .01

[1] Change in –2Log Likelihood from previous model step

Table 35 (continued)

Tests of Group and Individual Deviation Climate as Moderator of Career Changer Friendships: Task Cohesion

		Model 1	Model 2	Model 3	Model 4
Contact					
	b	.49**	.27	-.67	-.71
	SE	.07	.57	1.21	1.20
Group Task Cohesion					
	b	.14*	.13	-.21	-.22
	SE	.06	.07	.36	.39
Group Task Cohesion x Contact					
	b		.04	.23	.23
	SE		.11	.23	.23
Deviation Task Cohesion					
	b			.35	.18
	SE			.39	.40
Deviation Task Cohesion x Contact					
	b				.11†
	SE				.06
Δ-2LL[1]		-5	0	-1	-4
ES		.04	.00	.00	.02
df Level 1 (2)		143 (12)	143 (11)	142 (11)	141 (11)

† $p < .10$, * $p < .05$, ** $< .01$

[1] Change in –2Log Likelihood from previous model step

Table 35 (continued)

Tests of Group and Individual Deviation Climate as Moderator of Career Changer Friendships: Social Cohesion

		Model 1	Model 2	Model 3	Model 4
Contact					
	b	.47**	-.13	-.11	-.14
	SE	.08	.84	.84	.82
Group Social Cohesion					
	b	-.08	-.33	-.32	-.33
	SE	.16	.36	.39	.38
Group Social Cohesion x Contact					
	b		.11	.11	.12
	SE		.16	.16	.15
Deviation Social Cohesion					
	b			.04	-.07
	SE			.06	.12
Deviation Social Cohesion x Contact					
	b				.07
	SE				.06
Δ-2LL[1]		0	-1	0	-1
ES		.00	.01	.01	.02
df Level 1 (2)		140 (12)	140 (11)	139 (11)	138 (11)

* p < .05. ** < .01

[1] Change in –2Log Likelihood from previous model step

Appendix A: Cover Letter and Consent Form

Ph.D. Program in Psychology
Subprogram in Social-Personality Psychology

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The City University of New York
365 Fifth Avenue
New York, NY 10016-4309
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Dear Entering Culinary Institute of America Student:

You are invited to participate in a unique research project.

My name is David Livert and I am conducting a research study called "Becoming a Chef" for my dissertation. I am a doctoral student in the Social/Personality Psychology Ph.D. Program at the Graduate Center of the City University of (CUNY). The Culinary Institute of America has approved the project and agreed to let students entering on February 11, 2002 participate in the study.

The study explores the rewards and challenges that new students experience as they start classes at the Culinary Institute of America and "become chefs." I am particularly interested in what students think about their classes and how they get along with each other.

Participation is easy: sign below and complete the attached questionnaire. During the next few months at the Culinary, you will receive a very short (1-2 page) questionnaire every other week. This type of study is called longitudinal research because it focuses on what happens to the same people over time. Your participation is voluntary. All of your responses are confidential and will be kept secured in my office at the City University of New York and only I and my faculty adviser (Tracey Revenson, Ph.D.) will have access to your completed surveys.

The potential benefits for participation are: 1) the chance to contribute to an important scientific study, and 2) the opportunity to reflect upon your experiences as you learn culinary skills and techniques. As an incentive for participating, you will receive a summary report of your responses over the semester and as well as comparison data for your entering class as a whole.

I'm also asking students who participate in the study for access to their first semester grades at the Culinary. Education researchers often link data collected from students to their grades to understand how ups and downs during the semester affect how well students do. You may participate in this study without granting me access to your grades.

If you have any questions about this research, you can call me at (212) 817-1818 or dlivert@gc.cuny.edu, or my advisor Professor Tracey Revenson at (212) 817-8709. If you have questions about your rights as a participant in this study, you can contact Hilry Fisher, Sponsored Research, The Graduate Center/City University of New York, (212) 817-7523, hfisher@gc.cuny.edu.

Thank you for participating in the study.

David Livert

If you agree to participate, please sign below:

Participant's signature Date

David Livert, Principal Investigator Date 1/22/02

Appendix B: Participant Information Card

Becoming a Chef Study: Participants' Rights

The purpose of the study is to learn about the rewards and challenges of being a chef student, how students feel about various aspects of their classes, and how students get along with each other.

- Your participation is completely voluntary.
- You may withdraw at any time without penalty.
- You can choose not to answer particular questions in any of the questionnaires without penalty.
- All of your responses are confidential and will be kept secured in my office at the City University of New York. Only I and my dissertation adviser will have access to your completed surveys.
- No one from the Culinary Institute of America – including other students, faculty, or staff – will ever see your individual responses.
- Whether you take part in the study will not in any way affect your grade or standing at the Culinary.

The potential benefits for participation are:

1) the chance to contribute to an important scientific study
2) the opportunity for students to reflect upon their experiences as they learn culinary skills and techniques.

If you have any questions at all about the study you can call David Livert at (212) 817-1818 or Professor Tracey Revenson at (212) 817-8709. Our email is dlivert@gc.cuny.edu and our address is: Social/Personality Psychology, 365 Fifth Avenue, New York, NY 10016.

If you would like to talk to a member of the Institutional Review Board at the CUNY Graduate Center (the body that oversees research) about your rights as a research participant, you should call Hilry Fisher at (212) 817-7523 or email hfisher@gc.cuny.edu.

Appendix C: Orientation Questionnaire

Becoming a Chef Study

The first set of questions asks about your preparation and expectations.

1. What are your career aspirations? What things would you like to accomplish as a chef?

_____

_____

2a. How many current students at the Culinary — those who have already taken some classes – are friends or acquaintances of yours? ___

2b. Of these students, how many are enrolled in:
Culinary Arts ___
Baking & Pastry ___

2c. Of these students, how many are:
Men ___
Women ___

3. How often you have thought or felt a certain way during the past week?
For example, if you "Never" felt a certain way, you should circle the "1" next to the statement.

	Never	Rarely	Sometimes	Often
a. Unable to control the important things in your life	1	2	3	4
b. Confident about your ability to handle your personal problems	1	2	3	4
c. Felt things going your way	1	2	3	4
d. Felt difficulties were piling up so high that you could not overcome them	1	2	3	4

4. What is your opinion of the following groups, based upon your own kitchen experience? If you haven't had a great deal of experience with these groups, your best guess is fine.

Circle one number for each item.

What is your opinion about MALE CULINARY STUDENT CHEFS?	Completely Disagree				Completely Agree
a. Have excellent technical skills	0	1	2	3	4
b. Are mostly all alike	0	1	2	3	4
c. Can deal with the unexpected	0	1	2	3	4
d. Are likely to become great chefs	0	1	2	3	4
e. Are likely to get jobs they don't deserve	0	1	2	3	4
f. Can manage a kitchen well	0	1	2	3	4
g. Are motivated to become great chefs	0	1	2	3	4

What is your opinion about MALE BAKING & PASTRY STUDENT CHEFS?	Completely Disagree				Completely Agree
a. Have excellent technical skills	0	1	2	3	4
b. Are mostly all alike	0	1	2	3	4
c. Can deal with the unexpected	0	1	2	3	4
d. Are likely to become great chefs	0	1	2	3	4
e. Are likely to get jobs they don't deserve	0	1	2	3	4
f. Can manage a kitchen well	0	1	2	3	4
g. Are motivated to become great chefs	0	1	2	3	4

What is your opinion about FEMALE CULINARY STUDENT CHEFS?	Completely Disagree				Completely Agree
a. Have excellent technical skills	0	1	2	3	4
b. Are mostly all alike	0	1	2	3	4
c. Can deal with the unexpected	0	1	2	3	4
d. Are likely to become great chefs	0	1	2	3	4
e. Are likely to get jobs they don't deserve	0	1	2	3	4
f. Can manage a kitchen well	0	1	2	3	4
g. Are motivated to become great chefs	0	1	2	3	4

What is your opinion about FEMALE BAKING & PASTRY STUDENT CHEFS?	Completely Disagree				Completely Agree
a. Have excellent technical skills	0	1	2	3	4
b. Are mostly all alike	0	1	2	3	4
c. Can deal with the unexpected	0	1	2	3	4
d. Are likely to become great chefs	0	1	2	3	4
e. Are likely to get jobs they don't deserve	0	1	2	3	4
f. Can manage a kitchen well	0	1	2	3	4
g. Are motivated to become great chefs	0	1	2	3	4

5. How do you feel about the following:
Circle one number for each item.

How do you feel about MALE CULINARY STUDENT CHEFS?	Not at all	A little	Somewhat	Very
a. Proud	❑0	❑1	❑2	❑3
b. Enthusiastic	❑0	❑1	❑2	❑3
c. Bitter	❑0	❑1	❑2	❑3
d. Hopeful	❑0	❑1	❑2	❑3
e. Hatred	❑0	❑1	❑2	❑3
f. Uneasy	❑0	❑1	❑2	❑3

How do you feel about FEMALE CULINARY STUDENT CHEFS?	Not at all	A little	Somewhat	Very
a. Proud	❑0	❑1	❑2	❑3
b. Enthusiastic	❑0	❑1	❑2	❑3
c. Bitter	❑0	❑1	❑2	❑3
d. Hopeful	❑0	❑1	❑2	❑3
e. Hatred	❑0	❑1	❑2	❑3
f. Uneasy	❑0	❑1	❑2	❑3

How do you feel about MALE BAKING & PASTRY STUDENT CHEFS?	Not at all	A little	Somewhat	Very
a. Proud	❑0	❑1	❑2	❑3
b. Enthusiastic	❑0	❑1	❑2	❑3
c. Bitter	❑0	❑1	❑2	❑3
d. Hopeful	❑0	❑1	❑2	❑3
e. Hatred	❑0	❑1	❑2	❑3
f. Uneasy	❑0	❑1	❑2	❑3

How do you feel about FEMALE BAKING & PASTRY STUDENT CHEFS?	Not at all	A little	Somewhat	Very
a. Proud	❑0	❑1	❑2	❑3
b. Enthusiastic	❑0	❑1	❑2	❑3
c. Bitter	❑0	❑1	❑2	❑3
d. Hopeful	❑0	❑1	❑2	❑3
e. Hatred	❑0	❑1	❑2	❑3
f. Uneasy	❑0	❑1	❑2	❑3

6. A CAREER CHANGER CHEF is someone who has changed from a previous career or type of work outside the food industry.

Do you consider yourself?							
First Career Chef	❑0	❑1	❑2	❑3	❑4	❑5	Career Changer Chef

7. What is your opinion of the following groups, based upon your own kitchen experience? If you haven't had a great deal of experience with these groups, your best guess is fine.

What is your opinion about FIRST CAREER CHEFS?	Completely Disagree				Completely Agree
a. Have excellent technical skills	0	1	2	3	4
b. Are mostly all alike	0	1	2	3	4
c. Can deal with the unexpected	0	1	2	3	4
d. Are likely to become great chefs	0	1	2	3	4
e. Are likely to get jobs they don't deserve	0	1	2	3	4

f. Can manage a kitchen well	0	1	2	3	4
g. Are motivated to become great chefs	0	1	2	3	4

What is your opinion about CAREER CHANGER CHEFS?	Completely Disagree				Completely Agree
a. Have excellent technical skills	0	1	2	3	4
b. Are mostly all alike	0	1	2	3	4
c. Can deal with the unexpected	0	1	2	3	4
d. Are likely to become great chefs	0	1	2	3	4
e. Are likely to get jobs they don't deserve	0	1	2	3	4
f. Can manage a kitchen well	0	1	2	3	4
g. Are motivated to become great chefs	0	1	2	3	4

8. How do you feel about the following:
Circle one number for each item.

How do you feel about FIRST CAREER CHEFS?	Not at all	A little	Somewhat	Very
a. Proud	❑0	❑1	❑2	❑3
b. Enthusiastic	❑0	❑1	❑2	❑3
c. Bitter	❑0	❑1	❑2	❑3
d. Hopeful	❑0	❑1	❑2	❑3
e. Hatred	❑0	❑1	❑2	❑3
f. Uneasy	❑0	❑1	❑2	❑3

How do you feel about CAREER CHANGER CHEFS?	Not at all	A little	Somewhat	Very
a. Proud	❑0	❑1	❑2	❑3
b. Enthusiastic	❑0	❑1	❑2	❑3
c. Bitter	❑0	❑1	❑2	❑3
d. Hopeful	❑0	❑1	❑2	❑3
e. Hatred	❑0	❑1	❑2	❑3
f. Uneasy	❑0	❑1	❑2	❑3

9. How well does each of the following describe you? *Please circle one number for each item.*	Extremely Uncharacteristic				Extremely Characteristic
a. I am socially somewhat awkward.	0	1	2	3	4
b. I'm always willing to admit when I make a mistake.	0	1	2	3	4
c. I like to be with people.	0	1	2	3	4
d. I don't find it hard to talk with strangers.	0	1	2	3	4
e. I welcome the opportunity to mix socially with people.	0	1	2	3	4
f. I like to gossip at times.	0	1	2	3	4
g. When conversing I worry about saying something dumb.	0	1	2	3	4
h. I prefer working with others rather than alone.	0	1	2	3	4
i. I always try to practice what I preach.	0	1	2	3	4
j. I feel nervous when speaking to someone in authority.	0	1	2	3	4
k. There have been occasions when I took advantage of someone.	0	1	2	3	4
l. I find people more stimulating than anything else.	0	1	2	3	4
m. I never resent being asked to return a favor.	0	1	2	3	4
n. I am often uncomfortable at parties and other social functions.	0	1	2	3	4
o. At times I have really insisted on having things my own way.	0	1	2	3	4
p. I feel inhibited in social situations.	0	1	2	3	4
q. I have never been irked when people expressed ideas very different from my own.	0	1	2	3	4
r. I'd be unhappy if I were prevented from making many social contacts.	0	1	2	3	4
s. I sometimes try to get even rather than to forgive and forget.	0	1	2	3	4
t. I have trouble looking someone right in the eye.	0	1	2	3	4
u. I have never said something that hurt someone's feelings.	0	1	2	3	4
v. There have been occasions when I felt like smashing things.	0	1	2	3	4
w. I am more shy with members of the opposite sex.	0	1	2	3	4

10. Your age: ___ ___

11. Are you: ❑$_0$ Male ❑$_1$ Female

FINALLY, THIS IS VERY IMPORTANT...

Please put the last 4 digits of your Social Security number in the blanks below:

___ ___ ___ ___

Remember: all of your responses are confidential and will not be seen by other students, faculty, or staff at the Culinary Institute.

YOU'RE FINISHED!

Thank you for giving your time to allow us to learn more about the experiences and opinions of student chefs.

TO RETURN YOUR QUESTIONNAIRE:

Please give your completed questionnaire to one of the people collecting them. At that point, you will receive a "Participant's Rights" card which includes important information about the study, including how to contact us. Keep this card through the completion of the study.

WHAT COMES NEXT?

This study examines the rewards and challenges of student chefs through their first months at the Culinary Institute of America. This type of study is called *longitudinal* research because it focuses on what happens to the *same people over time*.

You've just completed the first – and longest – of the questionnaires in the study. In roughly two weeks you will receive another shorter questionnaire in your gastronomy class at the Culinary Institute. You will have a few minutes at that time to complete it. Future questionnaires will ask about how things are going as well as how you feel about your classes, instructors, and fellow students.

Thanks again for participating in the study and good luck during your first semester!

Appendix D: B3 Questionnaire

Becoming a Chef Study

How are things going this week?

1. In general, how satisfied are you with each of the following?
Circle one number for each item.

	Very Dissatisfied	Somewhat Dissatisfied	Somewhat Satisfied	Very Satisfied
a. This block's classes	1	2	3	4
b. This block's instructors	1	2	3	4
c. My classmates during this block	1	2	3	4
d. What I've learned during this block	1	2	3	4

2. How much do you agree or disagree with the following statements about your classes in this block?
Circle one number for each item.

	Completely Disagree	Somewhat Disagree	Somewhat Agree	Completely Agree
a. The students in my classes treat each other as equals.	1	2	3	4
b. As student chefs, we all have the same opportunities here.	1	2	3	4
c. The students in my classes are all in the same boat.	1	2	3	4
d. There's a real pecking order in my classes.	1	2	3	4
e. Instructors clearly favor some students over others.	1	2	3	4
f. Some students in my classes seem to think they are better than others.	1	2	3	4
g. Some students spend a lot of time talking about other student's performance.	1	2	3	4
h. Instructors are fair to all groups of students.	1	2	3	4
i. Not all students here are treated equally.	1	2	3	4

3. In the first column of the table below, list up to 8 Culinary Institute students whom you consider to be <u>friends</u> of yours. Listing each person by their initials helps to keep things straight.

<u>Friends</u> are those individuals with whom you frequently or often interact for personal satisfaction and enjoyment.

For each friend listed, please answer the following:

Friend's Initials	Did person enter the Culinary at the same time that you did?	Is person in Culinary Arts or Baking & Pastry?	Is this person in your gastronomy class?	Is this person?	Which best describes your relationship with this person? Casual Acquaintance				Best Friend
1 __ __	❑0 Yes ❑1 No	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑0	❑1	❑2	❑3	❑4
2 __ __	❑0 Yes ❑1 No	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑0	❑1	❑2	❑3	❑4
3 __ __	❑0 Yes ❑1 No	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑0	❑1	❑2	❑3	❑4
4 __ __	❑0 Yes ❑1 No	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑0	❑1	❑2	❑3	❑4
5 __ __	❑0 Yes ❑1 No	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑0	❑1	❑2	❑3	❑4
6 __ __	❑0 Yes ❑1 No	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑0	❑1	❑2	❑3	❑4
7 __ __	❑0 Yes ❑1 No	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑0	❑1	❑2	❑3	❑4
8 __ __	❑0 Yes ❑1 No	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑0	❑1	❑2	❑3	❑4

4. How often you have thought or felt a certain way during the past week?

For example, if you "Never" felt a certain way, you should circle the "1" next to the statement.

	Never	Rarely	Sometimes	Often
a. Unable to control the important things in your life	1	2	3	4
b. Confident about your ability to handle your personal problems	1	2	3	4
c. Felt things were going your way	1	2	3	4
d. Felt difficulties were piling up so high that you could not overcome them	1	2	3	4

FINALLY, THIS IS VERY IMPORTANT...

Please put the last 4 digits of your Social Security number in the blanks below:

____ ____ ____ ____

Remember: all of your responses are confidential and will not be seen by other students, faculty, or staff at the Culinary Institute.

Thank you for giving your time to allow us to learn more about the experiences and opinions of student chefs during their first months at the Culinary Institute of America.

In roughly two weeks you will receive another questionnaire in your gastronomy class at the Culinary Institute. You will have a few minutes at that time to complete it.

Thanks again for participating! Good luck with your classes!

Appendix E: B5 Questionnaire

Becoming a Chef Study

1. In general, how satisfied are you with each of the following?
Circle one number for each item.

	Very Dissatisfied	Somewhat Dissatisfied	Somewhat Satisfied	Very Satisfied
a. This block's classes	1	2	3	4
b. This block's instructors	1	2	3	4
c. My classmates during this block	1	2	3	4
d. What I've learned during this block	1	2	3	4

2. How often you have thought or felt a certain way during the past week?
For example, if you "Never" felt a certain way, you should circle the "1" next to the statement.

	Never	Rarely	Sometimes	Often
a. Unable to control the important things in your life	1	2	3	4
b. Confident about your ability to handle your personal problems	1	2	3	4
c. Felt things were going your way	1	2	3	4
d. Felt difficulties were piling up so high that you could not overcome them	1	2	3	4

3. What <u>good things</u> happened to you at the Culinary last week?

_____

_____

4. Describe any <u>bad things</u> that happened to you last week at the Culinary:

_____

_____

Continued on the back → → → → →

5. How much do you agree or disagree with the following statements about your classes in this block?

Circle one number for each item.

	Completely Disagree	Somewhat Disagree	Somewhat Agree	Completely Agree
a. Students prefer group projects to working alone.	1	2	3	4
b. Students feel pressured to compete here.	1	2	3	4
c. In most of my classes, students help each other learn.	1	2	3	4
d. Students try hard to get the best grade.	1	2	3	4
e. Our grades often depend on each other's work.	1	2	3	4
f. Some students always try to see who can master a skill first.	1	2	3	4
g. Most students enjoy helping each other on group projects.	1	2	3	4
h. Grades are not very important in my classes.	1	2	3	4
i. Some students don't do their part on group projects.	1	2	3	4
j. A few students will do almost anything to be the best.	1	2	3	4
k. In most of my classes, we work together.	1	2	3	4
l. In most classes, my work isn't finished until everyone else has finished.	1	2	3	4
m. Students try to impress each other here.	1	2	3	4
n. Students here don't care about what grades the other students are getting.	1	2	3	4

FINALLY, THIS IS VERY IMPORTANT...

Please put the last 4 digits of your Social Security number in the blanks below:

___ ___ ___ ___

Remember: all of your responses are confidential and will not be seen by other students, faculty, or staff at the Culinary Institute.

Thanks again for participating!

Appendix F: C3 Questionnaire

Becoming a Chef Study

How are things going this week?

1. In general, how satisfied are you with each of the following?
Circle one number for each item.

	Very Dissatisfied	Somewhat Dissatisfied	Somewhat Satisfied	Very Satisfied
a. This block's classes	1	2	3	4
b. This block's instructors	1	2	3	4
c. My classmates during this block	1	2	3	4
d. What I've learned during this block	1	2	3	4

2. How often you have thought or felt a certain way during the past week?
For example, if you "Never" felt a certain way, you should circle the "1" next to the statement.

	Never	Rarely	Sometimes	Often
a. Unable to control the important things in your life	1	2	3	4
b. Confident about your ability to handle your personal problems	1	2	3	4
c. Felt things were going your way	1	2	3	4
d. Felt difficulties were piling up so high that you could not overcome them	1	2	3	4

3. Are most students getting along? Without mentioning any names, describe any student conflicts you've witnessed in the past week:

_____

_____

_____

_____

4. How do you feel about others in your group?

Members of your group (113) are listed in the left column of the table below. For each person listed, indicate how you feel about that person. You can leave the row for your own name blank!

Remember: your responses will never be seen by other students in your group or by anyone else at the Culinary Institute.

	Which best describes your relationship with this person? *Check one box for each person.*								
	Casual Acquaintance						Best Friend	Prefer to avoid this person	Don't really know this person
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0

5. In the first column of the table below, list up to 5 Culinary Institute students whom you consider <u>friends</u> who are <u>not in your group</u>. Listing each person by their initials may help you.

For each friend listed, please answer the following:

Friend's Initials	Is this person in Culinary Arts or Baking & Pastry?	Was this person in your gastronomy class?	Is this person?	Which best describes your relationship with this person? Casual Acquaintance ... Best Friend
1 ___ ___	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7
2 ___ ___	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7
3 ___ ___	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7
4 ___ ___	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7
5 ___ ___	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7
6 ___ ___	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7
7 ___ ___	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7
8 ___ ___	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7

FINALLY, THIS IS VERY IMPORTANT...

Please put the <u>last 4 digits</u> of your Social Security number in the blanks below:

___ ___ ___ ___ **(If you don't have a Social Security number, write your initials)**

In roughly two weeks you will receive another questionnaire in your writing class. You will have a few minutes at that time to complete it.

Thanks again for participating! Good luck with your classes!

Appendix G: D3 Questionnaire

Becoming a Chef Study

1. In general, how satisfied are you with each of the following?

Circle one number for each item.

	Very Dissatisfied	Somewhat Dissatisfied	Somewhat Satisfied	Very Satisfied
a. This block's classes	1	2	3	4
b. This block's instructors	1	2	3	4
c. My classmates during this block	1	2	3	4
d. What I've learned during this block	1	2	3	4

2. Do you agree or disagree with the following statements about your group?

Circle one number for each item.

	Completely Disagree						Completely Agree
a. Members of our group often socialize during class.	1	2	3	4	5	6	7
b. We encourage each other to get the most out of Skills class.	1	2	3	4	5	6	7
c. Most group members pitch in when work needs to be done.	1	2	3	4	5	6	7
d. Members of our group are satisfied with what they are learning in Skills class.	1	2	3	4	5	6	7
e. Members of our group sometimes socialize together outside of class.	1	2	3	4	5	6	7
f. Everyone in our group takes Skills class seriously.	1	2	3	4	5	6	7
g. If class were cancelled, members of our group would likely spend time together.	1	2	3	4	5	6	7
h. Everyone in our group agrees about the importance of Skills class.	1	2	3	4	5	6	7

3. How often you have thought or felt a certain way during the past week?

For example, if you "Never" felt a certain way, you should circle the "1" next to the statement.

	Never	Rarely	Sometimes	Often
a. Unable to control the important things in your life	1	2	3	4
b. Confident about your ability to handle your personal problems	1	2	3	4
c. Felt things were going your way	1	2	3	4
d. Felt difficulties were piling up so high that you could not overcome them	1	2	3	4

4. What is the team structure in your Skills class?

❑1 The same people are on my team each day, but our duties change	❑2 Different people are on my team each day ***Skip to Question 5***

Do you agree or disagree with the following statements about your team?

Circle one number for each item.

	Completely Disagree						Completely Agree
a. We work well together as a team.	1	2	3	4	5	6	7
b. Members of my team pull together.	1	2	3	4	5	6	7
c. Members of my team really care about one another.	1	2	3	4	5	6	7
d. Members of my team trust each other.	1	2	3	4	5	6	7

5. Do you agree or disagree with the following statements about your classes in this block?

Circle one number for each item.

	Completely Disagree	Somewhat Disagree	Somewhat Agree	Completely Agree
a. The students in my classes treat each other as equals.	1	2	3	4
b. As student chefs, we all have the same opportunities here.	1	2	3	4
c. The students in my classes are all in the same boat.	1	2	3	4
d. There's a real pecking order in my classes.	1	2	3	4
e. Instructors clearly favor some students over others.	1	2	3	4
f. Some students in my classes seem to think they are better than others.	1	2	3	4
g. Some students spend a lot of time talking about other student's performance.	1	2	3	4
h. Instructors are fair to all groups of students.	1	2	3	4
i. Not all students here are treated equally.	1	2	3	4

6 In the first column of the table below, list up to 8 Culinary Institute students whom you consider <u>friends</u>. Listing each person by their initials may help you.

For each friend listed, please answer the following:

Friend's Initials	Is this person in Culinary Arts or Baking & Pastry?	Was this person in your gastronomy class?	Was this person in your Group last block?	Is this person in your current Group?	Is this person?	Which best describes your relationship with this person? Casual Acquaintance ... Best Friend
1 ___ ___	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7
2 ___ ___	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7
3 ___ ___	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7
4 ___ ___	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7
5 ___ ___	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7
6 ___ ___	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7
7 ___ ___	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7
8 ___ ___	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7

7 How much do you agree or disagree with the following statements about your classes in this block?

Circle one number for each item.

	Completely Disagree	Somewhat Disagree	Somewhat Agree	Completely Agree
a. Students prefer group projects to working alone.	1	2	3	4
b. Students feel pressured to compete here.	1	2	3	4
c. In most of my classes, students help each other learn.	1	2	3	4
d. Students try hard to get the best grade.	1	2	3	4
e. Our grades often depend on each other's work.	1	2	3	4
f. Some students always try to see who can master a skill first.	1	2	3	4
g. Most students enjoy helping each other on group projects.	1	2	3	4
h. Grades are not very important in my classes.	1	2	3	4
i. Some students don't do their part on group projects.	1	2	3	4
j. A few students will do almost anything to be the best.	1	2	3	4
k. In most of my classes, we work together.	1	2	3	4
l. In most classes, my work isn't finished until everyone else has finished.	1	2	3	4
m. Students try to impress each other here.	1	2	3	4
n. Students here don't care about what grades the other students are getting.	1	2	3	4

FINALLY, THIS IS VERY IMPORTANT...

Please put the last 4 digits of your Social Security number in the blanks below:

___ ___ ___ ___ ***(If you don't have a Social Security number, write your initials)***

Remember: all of your responses are confidential and will not be seen by other students, faculty, or staff at the Culinary Institute.

Thanks again for participating!

Appendix H: E3 Questionnaire

Becoming a Chef Study

1. Do you agree or disagree with the following statements about your group?

Circle one number for each item.

	Completely Disagree						Completely Agree
a. Members of our group often socialize during class.	1	2	3	4	5	6	7
b. We encourage each other to get the most out of Skills class.	1	2	3	4	5	6	7
c. Most group members pitch in when work needs to be done.	1	2	3	4	5	6	7
d. Members of our group are satisfied with what they are learning in Skills class.	1	2	3	4	5	6	7
e. Members of our group sometimes socialize together outside of class.	1	2	3	4	5	6	7
f. Everyone in our group takes Skills class seriously.	1	2	3	4	5	6	7
g. If class were cancelled, members of our group would likely spend time together.	1	2	3	4	5	6	7
h. Everyone in our group agrees about the importance of Skills class.	1	2	3	4	5	6	7

2. What is the team structure in your current Skills class?

❑1 The same people are on my team each day, but our duties change	❑2 Different people are on my team each day ***Skip to Question 3***

Do you agree or disagree with the following statements about your team?

Circle one number for each item.

	Completely Disagree						Completely Agree
a. We work well together as a team.	1	2	3	4	5	6	7
b. Members of my team pull together.	1	2	3	4	5	6	7
c. Members of my team really care about one another.	1	2	3	4	5	6	7
d. Members of my team trust each other.	1	2	3	4	5	6	7

3. How do you feel about others in your group?

Members of your group (113) are listed in the left column of the table below. For each person listed, indicate how you feel about that person. You can leave the row for your own name blank!

Remember: your responses will never be seen by other students in your group or by anyone else at the Culinary Institute.

	Which best describes your relationship with this person? *Check one box for each person.*								
	Casual Acquaintance						Best Friend	Prefer to avoid this person	Don't really know this person
	☐1	☐2	☐3	☐4	☐5	☐6	☐7	☐9	☐0
	☐1	☐2	☐3	☐4	☐5	☐6	☐7	☐9	☐0
	☐1	☐2	☐3	☐4	☐5	☐6	☐7	☐9	☐0
	☐1	☐2	☐3	☐4	☐5	☐6	☐7	☐9	☐0
	☐1	☐2	☐3	☐4	☐5	☐6	☐7	☐9	☐0
	☐1	☐2	☐3	☐4	☐5	☐6	☐7	☐9	☐0
	☐1	☐2	☐3	☐4	☐5	☐6	☐7	☐9	☐0
	☐1	☐2	☐3	☐4	☐5	☐6	☐7	☐9	☐0
	☐1	☐2	☐3	☐4	☐5	☐6	☐7	☐9	☐0
	☐1	☐2	☐3	☐4	☐5	☐6	☐7	☐9	☐0
	☐1	☐2	☐3	☐4	☐5	☐6	☐7	☐9	☐0
	☐1	☐2	☐3	☐4	☐5	☐6	☐7	☐9	☐0
	☐1	☐2	☐3	☐4	☐5	☐6	☐7	☐9	☐0
	☐1	☐2	☐3	☐4	☐5	☐6	☐7	☐9	☐0
	☐1	☐2	☐3	☐4	☐5	☐6	☐7	☐9	☐0
	☐1	☐2	☐3	☐4	☐5	☐6	☐7	☐9	☐0

4. Students have mentioned different types of conflict in previous surveys. They are listed below...

	Have you been involved in or witnessed any of the following conflicts in the past week or two?	Was this a problem for you? (No problem → A serious problem)	Was this a problem for your group? (No problem → A serious problem)
Students arguing with chefs/instructors	❑1 Yes ❑0 No	❑1 ❑2 ❑3 ❑4 ❑5	❑1 ❑2 ❑3 ❑4 ❑5
Students not doing their share of the work	❑1 Yes ❑0 No	❑1 ❑2 ❑3 ❑4 ❑5	❑1 ❑2 ❑3 ❑4 ❑5
Students being bossy	❑1 Yes ❑0 No	❑1 ❑2 ❑3 ❑4 ❑5	❑1 ❑2 ❑3 ❑4 ❑5
Immature students	❑1 Yes ❑0 No	❑1 ❑2 ❑3 ❑4 ❑5	❑1 ❑2 ❑3 ❑4 ❑5
Roommate problems	❑1 Yes ❑0 No	❑1 ❑2 ❑3 ❑4 ❑5	❑1 ❑2 ❑3 ❑4 ❑5
Power struggle between students	❑1 Yes ❑0 No	❑1 ❑2 ❑3 ❑4 ❑5	❑1 ❑2 ❑3 ❑4 ❑5
Students with personality/social skills problems	❑1 Yes ❑0 No	❑1 ❑2 ❑3 ❑4 ❑5	❑1 ❑2 ❑3 ❑4 ❑5
Students not paying attention/learning in class	❑1 Yes ❑0 No	❑1 ❑2 ❑3 ❑4 ❑5	❑1 ❑2 ❑3 ❑4 ❑5
Students act like they are better than others	❑1 Yes ❑0 No	❑1 ❑2 ❑3 ❑4 ❑5	❑1 ❑2 ❑3 ❑4 ❑5
Problems outside of class	❑1 Yes ❑0 No	❑1 ❑2 ❑3 ❑4 ❑5	❑1 ❑2 ❑3 ❑4 ❑5
Conflicts with the group leader	❑1 Yes ❑0 No	❑1 ❑2 ❑3 ❑4 ❑5	❑1 ❑2 ❑3 ❑4 ❑5

5. How often you have thought or felt a certain way during the past week?

For example, if you "Never" felt a certain way, you should circle the "1" next to the statement.

	Never	Rarely	Sometimes	Often
a. Unable to control the important things in your life	1	2	3	4
b. Confident about your ability to handle your personal problems	1	2	3	4
c. Felt things were going your way	1	2	3	4
d. Felt difficulties were piling up so high that you could not overcome them	1	2	3	4

6. Imagine that you were opening your own restaurant. You have to hire students from your group to work in your kitchen. In the kitchen, you need chefs with the best culinary/baking skills. Who would you hire?

	Would hire	Would not hire
	☐0	☐1
	☐0	☐1
	☐0	☐1
	☐0	☐1
	☐0	☐1
	☐0	☐1
	☐0	☐1
	☐0	☐1
	☐0	☐1
	☐0	☐1
	☐0	☐1

	Would hire	Would not hire
	☐0	☐1
	☐0	☐1
	☐0	☐1
	☐0	☐1
	☐0	☐1

FINALLY, THIS IS VERY IMPORTANT...

Please put the last 4 digits of your Social Security number in the blanks below:

__ __ __ __ **(If you don't have a Social Security number, write your initials)**

Thanks again for participating! The semester is almost over!

Appendix I: F2 Questionnaire

Becoming a Chef Study

1. In general, how satisfied are you with each of the following?

Circle one number for each item.

	Very Dissatisfied	Somewhat Dissatisfied	Somewhat Satisfied	Very Satisfied
a. This block's skills classes	1	2	3	4
b. This block's skills instructors	1	2	3	4
c. My classmates during this block	1	2	3	4
d. What I've learned during this block	1	2	3	4

2. How often you have thought or felt a certain way during the past week?

For example, if you "Never" felt a certain way, you should circle the "1" next to the statement.

	Never	Rarely	Sometimes	Often
a. Unable to control the important things in your life	1	2	3	4
b. Confident about your ability to handle your personal problems	1	2	3	4
c. Felt things were going your way	1	2	3	4
d. Felt difficulties were piling up so high that you could not overcome them	1	2	3	4

3. What <u>good things</u> happened to you at the Culinary last week?

_____

_____

_____

4. Describe any <u>bad things</u> that happened to you last week:

_____

_____

_____

5. Do you agree or disagree with the following statements about your <u>current</u> group?

Circle one number for each item.

	Completely Disagree						Completely Agree
a. Members of our group often socialize during class.	1	2	3	4	5	6	7
b. We encourage each other to get the most out of Skills class.	1	2	3	4	5	6	7
c. Most group members pitch in when work needs to be done.	1	2	3	4	5	6	7
d. Members of our group are satisfied with what they are learning in Skills class.	1	2	3	4	5	6	7
e. Members of our group sometimes socialize together outside of class.	1	2	3	4	5	6	7
f. Everyone in our group takes Skills class seriously.	1	2	3	4	5	6	7
g. If class were cancelled, members of our group would likely spend time together.	1	2	3	4	5	6	7
h. Everyone in our group agrees about the importance of Skills class.	1	2	3	4	5	6	7

6. What things do you like to do for fun with other CIA students either on campus or off campus (e.g., going out to eat, drinking, basketball, cooking, movies)?

_____

_____

_____

_____

7. In the first column of the table below, list up to 8 Culinary Institute students whom you consider <u>friends</u>. Listing each person by their initials may help you.

For each friend listed, please answer the following:

Friend's Initials	Is this person in Culinary Arts or Baking & Pastry?	Was this person in your gastronomy class?	Was this person in your Group <u>last block</u>?	Is this person in your <u>current</u> Group?	Is this person?	Which best describes your relationship with this person? Casual Acquaintance ... Best Friend
1 __ __	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7
2 __ __	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7
3 __ __	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7
4 __ __	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7
5 __ __	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7
6 __ __	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7
7 __ __	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7
8 __ __	❑0 Culinary ❑1 Baking	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Yes ❑1 No	❑0 Male ❑1 Female	❑1 ❑2 ❑3 ❑4 ❑5 ❑6 ❑7

8. What is the team structure in your current Skills class (Skills III)?

❑1 The same people are on my team each day, but our duties change	❑2 Different people are on my team each day ***Skip to the last question***

Do you agree or disagree with the following statements about your team?

Circle one number for each item.

	Completely Disagree						Completely Agree
a. We work well together as a team.	1	2	3	4	5	6	7
b. Members of my team pull together.	1	2	3	4	5	6	7
c. Members of my team really care about one another.	1	2	3	4	5	6	7
d. Members of my team trust each other.	1	2	3	4	5	6	7

9. Based on what you have observed over the past few months, what kind of students have the hardest time fitting in at the CIA? Why do you think so?

_____

_____

_____

_____

What is your current group number? __ __ __

What was your previous group number? __ __ __

10. Do you agree or disagree with the following statements?

Circle one number for each item.	Strongly Disagree					Strongly Agree
a. You really can't change your basic ability as a chef: either you have it or you don't.	1	2	3	4	5	6
b. Great chefs are born, not made.	1	2	3	4	5	6
c. Some people don't have the talent to be a chef; no amount of education or training can change that.	1	2	3	4	5	6

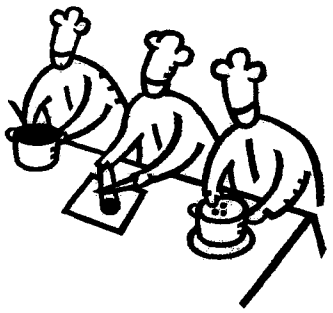
FINALLY, THIS IS VERY IMPORTANT...

Please put the last 4 digits of your Social Security number in the blanks below:

__ __ __ __ **(If you don't have a Social Security number, write your initials)**

Thanks again for participating!

Appendix J: G2 Questionnaire



Becoming a Chef Study

1. How satisfied are you with each of the following?

Circle one number for each item.	Very Dissatisfied	Somewhat Dissatisfied	Somewhat Satisfied	Very Satisfied
a. My Skills I & II chef	1	2	3	4
b. What I learned in Skills I & II	1	2	3	4
c. My classmates in Skills I & II	1	2	3	4
d. My Skills III chef	1	2	3	4
e. What I learned in Skills III	1	2	3	4
f. My classmates in Skills III	1	2	3	4

2. Overall, how would you rate your experience so far at the CIA?

Poor									Excellent
1	2	3	4	5	6	7	8	9	10

3. What has been your proudest moment so far at the CIA?

_____

_____

_____

4. What has been your biggest challenge so far at the CIA?

_____

_____

_____

5. How often you have thought or felt a certain way during the past week?

For example, if you "Never" felt a certain way, you should circle the "1" next to the statement.

	Never	Rarely	Sometimes	Often
a. Unable to control the important things in your life	1	2	3	4
b. Confident about your ability to handle your personal problems	1	2	3	4
c. Felt things were going your way	1	2	3	4
d. Felt difficulties were piling up so high that you could not overcome them	1	2	3	4

6. How much do you agree or disagree with the following statements?

Circle one number for each item.

	Strongly Disagree						Strongly Agree
a. Being a CULINARY CHEF STUDENT is central to who I am.	1	2	3	4	5	6	7
b. I would be proud to be identified as a CULINARY CHEF STUDENT.	1	2	3	4	5	6	7
c. Being a CULINARY CHEF STUDENT is an important reflection of who I am.	1	2	3	4	5	6	7
d. Being a CHEF is central to who I am.	1	2	3	4	5	6	7
e. I would be proud to be identified as a CHEF.	1	2	3	4	5	6	7
f. Being a CHEF is an important reflection of who I am.	1	2	3	4	5	6	7
g. The success of CHEFS as a group is more important than my own personal success.	1	2	3	4	5	6	7
h. When CHEFS do well, I feel good.	1	2	3	4	5	6	7
i. CHEFS stick together.	1	2	3	4	5	6	7
j. CHEFS have a set of standards that I feel I must live by.	1	2	3	4	5	6	7

7. Which chefs do you respect or admire?

_____

_____

8. What is your opinion of the following groups, based upon your experiences so far?
Circle one number for each item.

How do you feel about MALE CULINARY STUDENT CHEFS?	Not at all	A little	Somewhat	Very
a. Proud	❑0	❑1	❑2	❑3
b. Enthusiastic	❑0	❑1	❑2	❑3
c. Bitter	❑0	❑1	❑2	❑3
d. Hopeful	❑0	❑1	❑2	❑3
e. Hatred	❑0	❑1	❑2	❑3
f. Uneasy	❑0	❑1	❑2	❑3

How do you feel about FEMALE CULINARY STUDENT CHEFS?	Not at all	A little	Somewhat	Very
a. Proud	❑0	❑1	❑2	❑3
b. Enthusiastic	❑0	❑1	❑2	❑3
c. Bitter	❑0	❑1	❑2	❑3
d. Hopeful	❑0	❑1	❑2	❑3
e. Hatred	❑0	❑1	❑2	❑3
f. Uneasy	❑0	❑1	❑2	❑3

How do you feel about FEMALE BAKING & PASTRY STUDENT CHEFS?	Not at all	A little	Somewhat	Very
a. Proud	❑0	❑1	❑2	❑3
b. Enthusiastic	❑0	❑1	❑2	❑3
c. Bitter	❑0	❑1	❑2	❑3
d. Hopeful	❑0	❑1	❑2	❑3
e. Hatred	❑0	❑1	❑2	❑3
f. Uneasy	❑0	❑1	❑2	❑3

How do you feel about MALE BAKING & PASTRY STUDENT CHEFS?	Not at all	A little	Somewhat	Very
a. Proud	❑0	❑1	❑2	❑3
b. Enthusiastic	❑0	❑1	❑2	❑3
c. Bitter	❑0	❑1	❑2	❑3
d. Hopeful	❑0	❑1	❑2	❑3
e. Hatred	❑0	❑1	❑2	❑3
f. Uneasy	❑0	❑1	❑2	❑3

A CAREER CHANGER STUDENT CHEF is one who has changed from a previous career or type of work outside the food industry.

How do you feel about CAREER CHANGER STUDENT CHEFS?	Not at all	A little	Somewhat	Very
a. Proud	☐0	☐1	☐2	☐3
b. Enthusiastic	☐0	☐1	☐2	☐3
c. Bitter	☐0	☐1	☐2	☐3
d. Hopeful	☐0	☐1	☐2	☐3
e. Hatred	☐0	☐1	☐2	☐3
f. Uneasy	☐0	☐1	☐2	☐3

What is your opinion about CAREER CHANGER STUDENT CHEFS?	Completely Disagree				Completely Agree
a. Have excellent technical skills	0	1	2	3	4
b. Are mostly all alike	0	1	2	3	4
c. Can deal with the unexpected	0	1	2	3	4
d. Are likely to become great chefs	0	1	2	3	4
e. Are likely to get jobs they don't deserve	0	1	2	3	4
f. Can manage a kitchen well	0	1	2	3	4
g. Are motivated to become great chefs	0	1	2	3	4

What is your current group number? ___ ___ ___

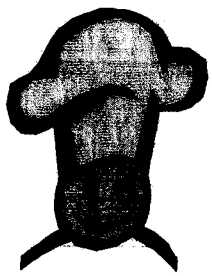
What was your previous group number? ___ ___ ___

Please put the last 4 digits of your Social Security number in the blanks below:

___ ___ ___ ___ **(If you don't have a Social Security number, write your initials)**

End of Part I...Turn over your questionnaire

(You're over halfway)



Part II
(the end is near...)

1. Are you currently pursuing an AOS or BPS degree?

❑1 AOS (Associate's)	❑2 BPS (Bachelor's) ***Skip to question 2***

	Very Unlikely				Very Likely
How likely are you to stay and get your Bachelor's at the CIA?	1	2	3	4	5
How likely are you to go somewhere else for your Bachelor's right away?	1	2	3	4	5

2. How likely are you to complete your <u>current degree</u> (either AOS or BPS)?

Very Unlikely									Very Likely
1	2	3	4	5	6	7	8	9	10

3. What is your opinion of the following groups, based upon your experience so far?

What is your opinion about FEMALE CULINARY STUDENT CHEFS?	Completely Disagree				Completely Agree
a. Have excellent technical skills	0	1	2	3	4
b. Are mostly all alike	0	1	2	3	4
c. Can deal with the unexpected	0	1	2	3	4
d. Are likely to become great chefs	0	1	2	3	4
e. Are likely to get jobs they don't deserve	0	1	2	3	4
f. Can manage a kitchen well	0	1	2	3	4
g. Are motivated to become great chefs	0	1	2	3	4

What is your opinion about FEMALE BAKING & PASTRY STUDENT CHEFS?	Completely Disagree				Completely Agree
a. Have excellent technical skills	0	1	2	3	4
b. Are mostly all alike	0	1	2	3	4
c. Can deal with the unexpected	0	1	2	3	4
d. Are likely to become great chefs	0	1	2	3	4
e. Are likely to get jobs they don't deserve	0	1	2	3	4
f. Can manage a kitchen well	0	1	2	3	4
g. Are motivated to become great chefs	0	1	2	3	4

What is your opinion about MALE CULINARY STUDENT CHEFS?	Completely Disagree				Completely Agree
a. Have excellent technical skills	0	1	2	3	4
b. Are mostly all alike	0	1	2	3	4
c. Can deal with the unexpected	0	1	2	3	4
d. Are likely to become great chefs	0	1	2	3	4
e. Are likely to get jobs they don't deserve	0	1	2	3	4
f. Can manage a kitchen well	0	1	2	3	4
g. Are motivated to become great chefs	0	1	2	3	4

What is your opinion about MALE BAKING & PASTRY STUDENT CHEFS?	Completely Disagree				Completely Agree
a. Have excellent technical skills	0	1	2	3	4
b. Are mostly all alike	0	1	2	3	4
c. Can deal with the unexpected	0	1	2	3	4
d. Are likely to become great chefs	0	1	2	3	4
e. Are likely to get jobs they don't deserve	0	1	2	3	4
f. Can manage a kitchen well	0	1	2	3	4
g. Are motivated to become great chefs	0	1	2	3	4

4. Students in your group and your sister group (233 and 235) are listed below. For each person listed, indicate how you feel about that person. You can leave the row for your own name blank!

Check one box for each person.	Casual Acquaintance						Best Friend	Prefer to avoid this person	Don't really know this person
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0
	❑1	❑2	❑3	❑4	❑5	❑6	❑7	❑9	❑0

5. Would you recommend the CIA to prospective students?

Definitely Would Not									Definitely Would
1	2	3	4	5	6	7	8	9	10

6. Have you dated, been intimate with, or had sex with other CIA students? ❑$_1$ Yes ❑$_0$ No

Were any of these students in your previous or current group? ❑$_1$ Yes ❑$_0$ No

7. Did <u>other students</u>' relationships ever create problems for your group? ❑$_1$ Yes ❑$_0$ No

8. Which best describes you?

- ❑$_0$ Never been married
- ❑$_1$ A member of an unmarried couple
- ❑$_2$ Married
- ❑$_3$ Divorced/Separated
- ❑$_4$ Widowed

9. <u>You</u> are now an expert on what students encounter during their first four months at the CIA.
In your opinion, what are specific ways to improve the experience (or the CIA in general)?

_____

_____

_____

_____

FINALLY, THIS IS VERY IMPORTANT...

Please put the last 4 digits of your Social Security number in the blanks below:

___ ___ ___ ___ **(If you don't have a Social Security number, write your initials)**

YOU'RE FINISHED FOR A WHILE!

We've reached a long break in the "Becoming a Chef" study. My deepest thanks to you for participating during the past four months.

There will be a few more surveys later this year and next year: probably around externship and just before graduation.

WHAT ABOUT THE RESULTS?

You'll receive a short report in the mail from before you go on externship. I'm also working with the CIA to arrange a series of formal presentations to students. These will probably be held when you return from externship.

HOW ABOUT SOME COFFEE AND A PASTRY?

I'd be happy to treat. Call me, drop me a line, or send me email and let's arrange a chance to chat about how things are going. Many students like to go to the Apple Pie Bakery, but off campus is okay too. I'll be giving out a card with my contact information when you turn in this survey.

Again, thanks so much for making this study a success! I look forward to visiting your restaurant, bakery, or hotel in the future!

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