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The Influence of Emotional Contagion on the Formation of Group Affective Tone within the Student Cohort Model

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The Influence of Emotional Contagion on the Formation of Group Affective Tone within the Student Cohort Model

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Abstract

The use of the cohort model within higher education has produced outcomes that have been either positive and adaptive or dysfunctional and maladaptive due to the unique identities formed by cohorts. The purpose of this study was to examine the cohort model through the lens of group level affect. The study examined whether cohorts of university students developed a group affective tone and whether or not the formation of group affective tone impacted student satisfaction with the cohort experience. The study also examined if susceptibility to emotional contagion and emotional expressivity was related to the degree of affective convergence of cohort members. The study found that student cohorts do form a positive group affective tone and this positive group affective tone is positively related to student satisfaction with their cohort experience. The study also found that susceptibility to the emotion of anger within a cohort was positively related to affective convergence of cohort members. The study discusses the implications of these findings for the use of the student cohort model in higher education.

Dedication

This dissertation is dedicated to my wife Kari Jensen. Her love and support were essential to the completion of this work.

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I would like to acknowledge my dissertation committee for their guidance and support throughout this process. Each member brought a unique vision and depth of knowledge to the project and I am a better researcher and person as a result.

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Chapter 1: Introduction

The use of the student cohort model within higher education has grown in popularity over the previous four decades (Lei et al., 2011; Maher, 2004) with multiple studies completed to assess the influence cohort dynamics have on the student experience (Browne-Ferrigno, 2001; Greenlee & Karanxha, 2010; Mandzuk, Hasinoff, & Seifert, 2003). These studies have shown mixed results with cohorts having the ability to create either positive or negative cultures that can influence the student educational experience (Lewis, Ascher, Hayes, & Ieva, 2010). While the cohort model has multiple benefits for its members such as increased social support (Seifert & Mandzuk, 2006), cohesiveness, student satisfaction, and feelings of purpose and affiliation (Greenlee & Karanxha, 2010), these results are not guaranteed. The cohort model, when dysfunctional, can produce negative outcomes which can include interpersonal conflict among members (Lewis et al., 2010) as well as the creation of negative norms regarding what is acceptable behavior within the group (Mandzuk et al., 2003). The difficulty for educational administrators and faculty who work with the cohort model is that the outcomes of utilizing the cohort model can be difficult to predict (Bista & Cox, 2014, p. 7). Increased research is needed to better understand what variables may influence a cohort's development of positive or negative cultures.

In particular, a theoretical lens is needed to better understand cohort variability that accounts for the strong sense of cohesion among cohort members (Greenlee & Karanxha, 2010) along with research suggesting that the primary consequence of the student cohort model is affective (Scribner & Donaldson, 2001). This theoretical understanding is particularly needed as university administrators are turning to the cohort model as a means to enhance student satisfaction in order to improve student retention (Roberts & Styron, 2010). The assumption that

the student cohort model will ultimately improve satisfaction, however, does not take into account the potential negative dynamics and consequences that may arise within student cohorts (Lei et al., 2011). An explanatory model that accounts for unpredictable affective consequences at the group level is needed to gain insight into the variable outcomes associated with the student cohort model.

Group affective tone, which was originally described as "consistent or homogeneous affective reactions within a group" (George, 1990, p. 108), explores the phenomenon of group member affect becoming increasingly congruent over time to the level of creating a distinct group-level affective identity that can have either positive or negative consequences at the group and organizational level. The occurrence and ramifications of group affective tone have been studied across a wide variety of laboratory and field conditions (Klep, Wisse, & van der Flier, 2013; Sy, Cote, & Saavedra, 2005; Tanghe, Wisse, & van der Flier, 2010) though to this point it has not been explored within the context of the university student cohort model. The examination of the student cohort model through the lens of group affective tone provided greater insight into how cohorts form positive or negative cultures.

An examination of potential variables influencing the formation of either a positive or negative group affective tone would provide an even greater level of understanding into the mechanisms behind the formation of positive and negative cohort culture. A theoretical model that has been used to explain the phenomenon of group affective tone is emotional contagion theory (Hatfield, Cacioppo, & Rapson, 1994). This theory describes the process of how emotions are passed from one person to another. For example, an individual may transmit a positive emotional state to another person bringing the two individuals into greater emotional synchrony. Emotional contagion can occur with negative emotional states as well. Emotional

contagion has been shown to occur within complex group-level dynamics (Dezecache et al., 2013) and has been posited to influence the formation of group affective tone (Collins, Lawrence, Troth, & Jordan, 2013). This is an important link as research has found that individuals are inherently more or less susceptible to emotional contagion (Bhullar, 2012) and have varying degrees of emotional expressivity which has been shown to be linked to transmission of emotional contagion (Sy, Choi, & Johnson, 2013). Taken together, researching the influence of cohort members' affect, susceptibility to emotional contagion, and expression of emotional contagion on the formation of group affective tone may provide insight into the variable nature of student cohort positive or negative affective identity.

The above considerations could have significant ramifications on student satisfaction. Student satisfaction (both general and domain-specific) has been shown to be directly influenced by a student's affect (positive or negative) (Lent et al., 2005). This suggests the consequences of positive or negative cohort-level affective tone may influence a cohort member's level of satisfaction with the educational experience. This is critical as research has shown student satisfaction is linked to such issues as student perception of integration within the university (Rhodes & Nevill, 2004) and ultimately student retention (Schreiner, 2009). Retention in particular has received considerable attention given the high levels of university student attrition. According to a report co-sponsored by the Lumina Foundation, only 68.7% of students who started college in 2012 returned to college the following year and only 58.2% returned to the same institution (National Student Clearinghouse, 2014). Understanding drivers of student satisfaction is crucial as universities continue to search for ways to positively influence student retention levels (Roberts & Styron, 2010). The current research provides insight into how cohort affective tone influences student satisfaction.

Statement of the Problem

The student cohort is an organizational model that continues to grow in popularity within higher education (Lei et al., 2011; Maher, 2004). The cohort model can be defined as a group of students who begin an academic program together, progress through the program as a group while creating a distinct group culture, and finish the program near the same time (Hubbell & Hubbell, 2010; Lei et al., 2011). There are a number of reasons why institutions of higher education utilize the cohort model. The student cohort model is meant to create an environment that supports intellectual and academic development and social connectedness among cohort members while providing administrators an organizational construct that is easier to schedule and manage (Seifert & Mandzuk, 2006). In general, the cohort model has been popular with students and faculty. Students appreciate how their educational program is organized and sequenced and faculty can efficiently plan and coordinate their courses due to the predictable nature of the course scheduling (Maher, 2005).

A growing body of research on cohort model outcomes, however, has generated mixed results. Positive outcomes of the cohort model have been documented. Cohort members have reported that the cohort model provided increased support from both faculty and fellow cohort members (Bista & Cox, 2014) as well as the formation of close relationships with fellow students (Seed, 2008). Cohort participation has also been linked to increased student engagement, college satisfaction, and academic performance (Zhao & Kuh, 2004). Negative outcomes have also emerged within the body of cohort research, particularly regarding cohort group dynamics. The cohort model has been shown to create clique development, unhealthy student competition, and interpersonal conflict (Lewis et al., 2010) that can be disruptive to the learning environment. Indeed, student cohort culture can mirror "dysfunctional families" allowing negative

relationships and attitudes to form (Lei et al., 2011, p. 501). This dysfunctional cohort dynamic can lead to a "mob mentality" that is disruptive and detrimental to the intended purposes of the cohort model (Hubbel & Hubbel, 2010, p. 349).

Despite evidence that the cohort model can generate unintended negative consequences, limited research has examined mechanisms that may explain why student cohorts can produce such disparate outcomes. Beachboard, Beachboard, Li, and Adkison (2010) noted limitations in the current body of cohort research due to limited evidence on intervening variables that could explain cohort success and failure. The present study sought to address the gap in the literature by analyzing potential mechanisms that could help explain why certain cohort experiences are positive and successful while others devolve into negativity and dysfunction. In particular, this study examined possible antecedents and processes that may influence a cohort's particular affective climate or group affective tone. This examination of group level affect as a driver of student cohort outcomes is warranted as it has been posited that cohort outcomes are primarily shaped by the affective dynamics of the cohort (Scribner & Donaldson, 2001).

Group affective tone, first studied by George (1990), was defined as the "consistent or homogeneous affective reactions within a group" (p. 108). Group affective tone describes the phenomenon in which the initially disparate affective states of individual group members converge over time towards a group-level emotional state. The term affect refers to the relatively stable dispositional trait involving the experience of positive or negative emotions over time (Soucy, Gaudreau, & Fecteau, 2011). This collective emotional state can be positive or negative and have tangible consequences on a group's level of function and outcomes. A negative group affective tone has been linked to detrimental group outcomes such as decreased prosocial behaviors (George, 1990) and decreased team performance (Cole, Walter, & Bruch, 2008).

While group affective tone and its consequences have been researched within student work groups (George, 1990; Klep et al., 2013; Sy et al., 2005) and professional occupations (Tanghe et al., 2010), it has not been studied in relation to student cohorts within higher education. Research examining the occurrence and implications of group affective tone within an educational cohort would help provide a mechanism for understanding the variable outcomes of the cohort model of education.

Additionally, an examination of potential mechanisms related to the formation of an educational cohort's group affective tone could provide insight into what variables may influence the formation, direction (positive or negative), and strength (degree of convergence) of the phenomenon. One theoretical explanation for the creation of group affective tone is emotional contagion theory. Emotional contagion theory, initially developed by Hatfield et al. (1994), conceptualized the phenomenon of individuals "catching" the emotions of others through a process of emotional synchronization leading to emotional convergence. While initially studied as a phenomenon between two individuals, it has since been studied and validated as occurring as a group level process as well (Barsade, 2002; Bhullar, 2012; Dezecache et al., 2013). Emotional contagion theory posits that some individuals are more susceptible to catching the emotions of others (susceptibility to emotional contagion) while other individuals are more likely to transmit their emotional state to others (Hatfield et al., 1994).

Susceptibility to emotional contagion has been positively correlated to an individual's level of emotional reactivity (Bhullar, 2012) and feelings of emotional exhaustion and burnout (Bakker, Schaufeli, Sixma, & Bosveld, 2001). Beyond the negative impact issues such as burnout may have on a student cohort, the nature of susceptibility to emotional contagion would suggest that a cohort that has a high proportion of this trait among its members would be more

prone to the formation of a strong group affective tone, positive or negative, that could impact the cohort's functioning as a whole.

Individuals who are considered powerful transmitters of emotional contagion may impact the cohort's group affective tone as well. A powerful transmitter of positive emotions could have a strong positive influence on a group while a powerful transmitter of negative emotions could have the opposite effect (Hatfield et al., 1994). In accordance with emotional contagion theory, cohort members who are strong transmitters of emotion may have a disproportional influence on the group affective tone of the cohort. For example, a small group of individuals with a negative affect who are powerful transmitters of emotion would have a stronger influence on the cohort than a group of positive cohort members who are not powerful transmitters of emotion.

Purpose

The purpose of this study was twofold. This study examined whether student cohorts within higher education develop a group affective tone and what relationship this positive or negative group affect may have on the student cohort's overall satisfaction with the cohort experience. This study utilized emotional contagion theory to examine possible influences on a cohort's affective tone such as susceptibility to emotional contagion and transmission of emotional contagion.

Research Questions

1. Does affective convergence occur within student cohorts forming group affective tone?
2. Does positive group affective tone positively correlate to student satisfaction with their cohort experience?

3. Does negative group affective tone negatively correlate to student satisfaction with their cohort experience?

4. Does susceptibility to emotional contagion positively correlate to the strength of affective convergence among cohort members?

5. Does transmission of emotional contagion positively correlate to the strength of affective convergence among cohort members?

Hypotheses

1. Affective convergence occurs within student cohorts forming group affective tone.

2. Positive group affective tone positively correlates to student satisfaction with their cohort experience.

3. Negative group affective tone negatively correlates to student satisfaction with their cohort experience.

4. Susceptibility to emotional contagion positively correlates to the strength of affective convergence among cohort members.

5. Transmission of emotional contagion positively correlates to the strength of affective convergence among cohort members.

Significance of the Study

The study of the student cohort model is significant to the field of education due to the ubiquity of this model within higher education. The use of the student cohort model in higher education can be traced back as far as the 1940s with subsequent growth in the 1980s due to grant funding supporting innovations within educational administration programs (Maher, 2004). Growth of the educational cohort model continued with the model being used across a variety of educational programs including professional programs such as healthcare and law (Saltiel &

Russo, 2001), education (Seifert & Mandzuk, 2006), and business and management (Harris, 2006). The cohort model has evolved to include freshman learning communities that utilize a modified cohort construct that places freshman from multiple disciplines into a sequence of general education courses (Jaffee, 2007). As this model continues to expand, it is becoming increasingly necessary to understand not only the potential positive and negative outcomes that can occur as a result of the cohort model but also the mechanisms that can influence these positive and negative outcomes.

Research has shown that the relative success or failure of a student cohort is largely a group level phenomenon. An early study by Radencich et al. (1998) found that cohorts may develop a team philosophy when the individual members set aside their personal views and conform towards the influences of the group. This ability to form a group philosophy can have positive benefits as educational programs ultimately try to inculcate their students with the beliefs and practices of the particular field. For example, a nursing program may want their student cohorts to adopt the attitudes and values singular to their particular profession. Cohort dynamics, particularly dynamics that could be construed as dysfunctional or negative, may confound this process. Mandzuk et al. (2003) found that while a group ideology may indeed form, it might not always be the one intended by the educational program. This phenomenon may, in part, be explained by the very nature of the cohort model. Seifert and Mandzuk (2006) found that unintended effects of the cohort model may be explained by the intensity and length of cohort relationships. They noted that the continuous nature of the group interactions made cohorts "vulnerable to mass hysteria" when problems occurred within their program (p. 1316). Indeed, cohesiveness can be a powerful benefit of the cohort model when the cohort is working as a functional unit though the very nature of cohesiveness can lead to a groupthink phenomenon

where the homogeneity of the cohort group creates conformity and censorship of non-conforming values and beliefs (Greenlee & Karanxha, 2010). Given the level of cohesion and dynamics that occur within the cohort model, along with the duration of the experience, it is critical to understand how a cohort can avoid becoming dysfunctional.

The use of a theoretical model that accounts for cohort interpersonal dynamics has the ability to increase our understanding of how certain cohorts maintain a functional, positive culture while other cohorts become dysfunctional and negative. Further, utilizing a theoretical model to understand antecedents to cohort success or failure has the potential to increase the level of understanding of educational administrators and instructors who work with the cohort model. Using emotional contagion theory (Hatfield et al., 1994) to examine the cohort phenomenon may allow for a better understanding how certain cohort member characteristics influence the greater dynamics of the group. Exploring how susceptibility to emotional contagion and transmission of emotional contagion of individual cohort members may influence the relative positive or negative mood of the cohort at the group level (i.e. group affective tone) has the potential to begin to aid in the overall understanding of cohort group dynamics. Indeed, the study of emotional contagion variables may give higher education professionals a degree of predictive ability based on the initial traits of cohort members. For example, a cohort that has a large percentage of individuals who are susceptible to emotional contagion along with a handful of strong transmitters of emotional contagion who have a negative affective trait may be vulnerable to the development of a generally negative or dysfunctional cohort once the students who are susceptible to emotional contagion subsume or "catch" the negative emotions of others. Understanding the potential for these dynamics ahead of time may allow higher education professionals to take measures to influence this process.

The study's examination of the consequences of group affective tone will also inform the state of cohort research within higher education as it relates to student satisfaction. A significant body of research exists outside the field of cohort education on the consequences of positive or negative group affective tone (e.g. Barsade, 2002; Cole, Walter, & Brunch, 2008; Gamero, Gonzalez-Roma, & Peiro, 2008; Sy et al., 2005; Tanghe et al., 2010). Studying the relationship between students' level of satisfaction with their cohort experience and their cohort's group affective tone will add to the literature and provide educators with a greater understanding on what drives student satisfaction.

Research has shown both a direct link between affect and student satisfaction (Lent et al., 2005; Ojeda, Flores, & Navarro, 2011) as well as a mediated link between affect and satisfaction via sense of efficacy (Garriiot, Hudyma, Keene, & Santiago, 2015). The connection between affect and student satisfaction is an important aspect of the cohort experience to consider given the impact student satisfaction has on institutions of higher education. For example, research has demonstrated a strong relationship between student satisfaction and retention (Rhodes & Nevill, 2004; Schreiner, 2009). Indeed, recommendations have been made for universities to adopt the cohort model as a means to improve student retention. The Lumina Foundation published a report on recommendations to improve student retention within community colleges with the strongest recommendation being the formation of learning communities which "typically organize instruction around themes, and students go through such programs as cohorts" (Bailey & Alphonso, 2005, p. 17). The recommendation, which utilized a review of the literature to support its conclusion, supported the notion that the student cohort model has the potential to be a powerful organizational method for improving the student experience. This sentiment was reconfirmed when the cohort model was identified as a means to improve student retention

(Roberts & Styron, 2014). These recommendations, however, did not address the inherent variability of cohort outcomes. The current study hoped to provide greater insight into the possible variables that may impact student satisfaction through an examination of the influence positive and negative group affective tone may have on student satisfaction.

Definition of Terms

Affect: The relatively stable dispositional trait involving the experience of positive or negative emotions over time (Soucy et al., 2011).

Cohort: An organizational model that entails a group of students beginning an academic program together, progressing through the program as a group while creating a distinct group culture, and finishing the program near the same time (Hubbell & Hubbell, 2010; Lei et al., 2011).

Emotional Contagion: The process of subsuming the emotion of another through a process of emotional synchronization leading to emotional convergence (Hatfield et al., 1994).

Group Affective Tone: A group-level phenomenon that occurs when group member affect converges into a homogenous affective state (George, 1990).

Susceptibility to Emotional Contagion: Sensitivity to the process of emotional contagion. Individuals who are susceptible to emotional contagion are more likely to adopt the emotions of others (Hatfield et al., 1994).

Transmission of Emotional Contagion: The process of spreading emotions to others. Emotionally expressive individuals are more likely to spread their emotions to others (Hatfield et al., 1994).

Limitations

The study's generalizability is limited to institutions of higher education that have similar cohort model structures as the university within the study. Another limitation of the study is the use of self-report measures without the corroboration of observation. Social desirability may influence the results of the study as students may feel inclined to present a positive impression.

Organization of the Remainder of the Study

The study is organized into five chapters. Chapter one provides an introduction to the topic, information on the research problem, a discussion on the relevance of the topic to higher education, a definition of terms, and limitations inherent to the study. Chapter two is the literature review that provides an in-depth analysis of the literature related to student cohorts, group affective tone, emotional contagion theory, and student satisfaction as it relates to affect and the consequences of student dissatisfaction. Chapter three provides an overview of the methodology utilized within the study including rationale for statistical analysis, tools, and sampling. Chapter four presents the results of the study and the statistical analysis of the data. Finally, chapter five concludes the dissertation with a discussion of the results including a discussion on implications of the study's results and potential future research based on these findings.

Chapter 2: Literature Review

The literature review for this study consists of four primary sections. The chapter opens with a review of the literature related to the cohort educational model. Research related to the group dynamics and affective outcomes of the cohort model received particular attention due to the focus of the current study. The literature review next focuses on the body of literature related to group affective tone. The review of group affective tone begins with George's (1990) initial conceptualization of the phenomenon and includes research that examined both group affective tone and its distal effects on group processes. Next, the literature review focuses on emotional contagion theory with particular emphasis on the theory's core assumptions, susceptibility to emotional contagion, transmission of emotional contagion, and emotional contagion within the college classroom. The literature review concludes with an examination of the relationship between affect and student satisfaction and why this relationship matters to institutions of higher education.

The review of the literature pertinent to this study contains both classic articles foundational to the research as well as contemporary articles that present the latest knowledge relevant to the present study. Additionally, the decision was made to include certain articles published greater than five years ago. The reasoning was twofold. First, the relative specificity of the study's focus required a longitudinally deeper examination of the literature to explore all pertinent research. Second, the body of literature on the student cohort model contains a fairly underdeveloped examination of cohort dynamics and the resultant positive or negative outcomes these dynamics can engender despite the compelling evidence that the articles reviewed present. This limitation in the literature supports the relevance of the current study as a means to both expand and update the state of the cohort model literature.

Cohort Education Model

The cohort educational model can be defined as a group of students who begin an academic program together, progress through the program as a group while creating a distinct group culture, and finish the program near the same time (Hubbell & Hubbell, 2010; Lei et al., 2011). This definition is fluid, however, as educational programs are adapting the model to meet their specific needs. Universities are utilizing the traditional cohort model across a variety of disciplines while implementing variations such as the freshman learning community (Jaffee, 2007) as well as learning communities that are organized by other means such as residential placements or student type (Zhao & Kuh, 2004). Despite the organizational variations, Saltiel and Russo (2001) described four primary themes that characterize a student cohort: defined membership, a common goal that is best achieved through the mutual support of the cohort, a highly structured schedule, and synergistic learning relationships. As the cohort model continues to grow and expand, a growing body of research has examined the benefits and drawbacks of this model. Research on the implications of the cohort education model has produced largely mixed results. A significant body of literature shows that the cohort model can generate positive outcomes, yet unintended and negative consequences occur with a frequency that warrants further investigation.

There are enough positive benefits of the cohort model to support its popularity and use within higher education. Beachboard et al. (2011), in a stratified random sample of 2,000 National Student Satisfaction Surveys of cohort and non-cohort members, found that cohort participants reported increased relatedness to both peers and faculty than their non-cohort peers. This phenomenon of relatedness within the cohort model had a significant subsequent impact on the variables of academic development and job preparation. The study found that relatedness

contributed to 5.3% of the variance related to academic development and 9.4% of the variance related to job preparation (Beachboard et al., 2011). These findings of relatedness and the subsequent positive outcomes of relatedness are a common theme in the cohort literature.

Themes of relatedness and connection were also found by Bista and Cox (2014) in a mixed methods study of 48 graduates from a cohort-based educational leadership doctoral program. The study found that cohort students reported appreciating the peer interaction generated by the cohort model and that the model created a supportive environment for both peers and faculty. Student quotes generated from the qualitative aspect of the study, such as "We felt like family," "I was able to make many lasting friends through the cohort experience," and "the cohort model allows for students to work together on projects and to network for future success," (Bista & Cox, 2014, p. 13) supported the study's conclusion that the cohort model created an atmosphere supportive to students.

The above findings of relatedness as a significant aspect of the student cohort experience supported earlier research on the power of cohort cohesion. Greenlee and Karanxha (2010) found significant differences between cohort and non-cohort students in the areas of cohesiveness, trust, and satisfaction. The study, which consisted of 42 students within a cohort model and 51 students taking classes in a non-cohort structure, examined multiple variables to better understand the potential influences the cohort model may have on students. The study found that students within a cohort would rate trust higher than 76% of non-cohort student (d = 0.71, 95% *CI* [0.28, 1.13], $p < .00$), rate cohesiveness higher than 73% of non-cohort students (d = 0.60, 95% *CI* [0.18, 1.02], $p < .00$) and rate satisfaction higher than 92% of non-cohort students (d = 1.42, 95% *CI* [0.96, 1.87], $p < .00$) (Greenlee & Karanxha, 2010). Additional

variables within the study measuring differences in participation, communication, collaboration, influence, and empowerment did not reach statistical significance.

This sense of student cohesion was further supported with evidence showing that the cohort experience created a "genuine sense of community" (Harris, 2006, p. 83) and allowed cohort members to develop "deeper interpersonal ties" (Maher, 2005, p. 201). Harris (2006) surveyed 39 cohort program members from a management and organizational development program to research if the cohorts studied formed a sense of community and what factors influenced the formation of community. The study found that 100% ($p < .01$) of participants affirmed the creation of a sense of community through the cohort model and 87.17% ($p < .01$) affirmed that this creation of community significantly contributed to their goal of college degree attainment (Harris, 2007). In the analysis of the open-ended responses examining why sense of community influenced degree attainment the majority of responses (90.4%) attributed this phenomenon to "the support, encouragement, friendship, closeness, affection, cohesiveness, camaraderie, motivation, love and wisdom students perceived that they received from their fellow classmates" (Harris, 2006, p. 99).

The study by Harris (2006) confirmed prior research findings by Maher (2005) regarding the impact cohort membership had on cohort members. The study utilized a qualitative design to examine students' understanding of cohort membership meaning and how cohort membership influenced both educational experience and relationship formation with peers and instructors. The study, which utilized semi-structured interviews and classroom observation, followed cohort members across the span of one year. The study found that student cohesiveness developed over time from "tenuous" (Maher, 2005, p. 201) to the formation of "deeper interpersonal ties" (p. 201-202). Approximately half of the participants developed relationships with their peers that

mirrored familial bonds. One student stated that "It's almost like being part of a family in that you are hoping that everybody is going to help you and you are all in it together" (Maher, 2005, p. 202). The study found that this phenomenon of cohesiveness was in part influenced by the development of a comfort zone existing within the cohort. One participant noted that "You are with these people for an extended period of time and not just one class…you are able to discuss things with people who are your colleagues and not strangers" (Maher, 2005, p. 205). One interesting finding from the study was that most of the participants joined their cohort program with no forethought on how the program's use of a cohort model would influence their educational experience. This is significant as students reported that they had underestimated the impact the cohort model would have on their educational experience (Maher, 2005). Students, it seemed, enrolled in cohort programs without fully appreciating the impact the cohesive nature of the cohort model could have on their educational experience.

The theme of cohort member relatedness and cohesion is predominant within the cohort literature. Though other studies have demonstrated additional benefits of the cohort model, such as improvements in student involvement, retention, and completion rates as compared to non-cohort students (Buch & Spaulding, 2008) and improved academic performance, engagement, and satisfaction (Zhao & Kuh, 2004), the predominant benefits seem to be related to social cohesion and community. Scribner and Donaldson (2001), in a review of cohort literature, found that cohorts were "most effective at producing affective outcomes" (p. 606). This is an important concept as affective outcomes can be dependent on the unique dynamics of the group. The authors went on to state

> Group cohesiveness may be a necessary condition to achieve the full potential of cohort learning, but it is not sufficient. For cohort students to fully engage with the content

> matter of a given course or program, learning must also address group dynamics and development. (Scribner & Donaldson, 2001, p. 631)

Indeed, cohort group dynamics may be in part responsible for the positive outcomes discussed above as well as the unintended negative outcomes of the cohort model.

Just as the cohesion created by the cohort model can facilitate a positive experience for participants (Bista & Cox, 2014; Greenlee & Karanxha, 2010), it can also contribute to a learning experience that is negative, counterproductive, and at times toxic to the learning environment. In a qualitative study of teacher education cohorts, Radencich et al. (1998) found cohorts "to be almost bimodal, on the whole either very positive or almost pathological" (p. 112). These "pathological" outcomes included the formation of student cliques, the exclusion of those deemed to be outsiders to the cohort, and at times behavior that was considered to be "vicious" (p. 114) to both faculty and fellow cohort members. This degree of dysfunction impacted the academic rigor of the cohort experience as faculty members at times reduced academic requirements for fear of poor evaluations.

Additional studies have found evidence of the potential for negative cohort outcomes. Beachboard et al. (2011) found that the enhanced relatedness brought about by the cohort model yielded negative results. The study's results found instances of clique formation and negative attitudes towards outsiders as byproducts of the cohort model. The study, which also collected faculty input, found that classroom management of cohorts could be more challenging. These findings of clique formation and challenges to faculty supported earlier assertions by Radencich et al. (1998) that the cohort model may not produce uniformly positive results.

Further studies found evidence of negative cohort dynamics leading to maladaptive cohort behavior. Maher (2004) found that cohort cohesion within teacher educational cohorts

could lead to groupthink or "a tendency to limit their thinking patterns to those commonly used and accepted in the cohort" (p. 22), as well as a form of passive collusion in which participants intentionally avoided full participation in group projects. This resistance to learning was also noted by Jaffee (2007) in his examination of freshman learning community cohorts utilizing a sociological framework that examined cohort dynamics through the lens of unintended consequences. One aspect of this framework that specifically related to cohort cohesion and connectedness was "extended homophily by design" (Jaffee, 2007, p. 66). Jaffee (2007) stated that this principle, in which like individuals attract one another within a group environment, had the potential to contribute to the unintended consequences of "excessive socializing, misconduct, disruptive behavior, and clique formation" (p. 67) and could be associated with pressure for conformity among cohort members. This negative cohesion could then lead to conflict between students and faculty.

Negative cohort relationships and dysfunctional cohort dynamics have been shown to have negative academic as well as social repercussions. Dyson and Hanley (2002), in a mixed method study of 94 students divided into cohort and non-cohort groups, found evidence that cohort dysfunction could impact GPA. The study found no significant difference between cohort and non-cohort students across a variety of measures (social support, self-efficacy, and adaptation to college) though found the non-cohort group had shown greater academic gains longitudinally as measured by GPA. The authors of the study stated that the poorer academic performance of the cohort group was likely due to dysfunctional social dynamics within the group. The qualitative data from the study suggested that the cohort developed negative relationships among cohort members which ultimately led to increased stress within the group

(Dyson & Hanley, 2002). The study's authors suggested that dysfunctional group dynamics may have been the cause for the deterioration of the cohort's academic functioning.

At present, limited understanding exists regarding influences of cohort variability. Certain theories have been considered in the examination of cohort dynamics. For example, Mandzuk et al. (2003) examined student cohorts using a social capital theory which sought to explain how the inherent cohesiveness of the cohort caused members to bond with fellow cohort members while not connecting (bridging) with those outside of their cohort group. This pattern of bonding and not bridging led to a limitation in student growth due to the insular nature of the cohort. Self-Determination Theory (SDT) was also utilized in the study of student cohorts to examine the relationship between a cohort member's sense of relatedness and their academic development (Beachboard et al., 2011). SDT posits that "environments that support perceptions of social relatedness improve motivation, thereby positively influencing learning behavior" (Beachboard et al., 2011, p. 853). The study's authors purported that the student cohort model created this type of environment. At present, no studies have been identified to further examine the relationship between the above theories and the student cohort model.

Further theoretical viewpoints are warranted despite the advances to the literature from the above examinations of theory related to cohorts as neither of the models addressed the issue of cohort outcome variability presented in the literature (Bista & Cox, 2014; Lewis et al., 2010; Madzuk et al., 2003). Scribner and Donaldson (2001), utilizing a qualitative case study design to examine the interplay between cohort group dynamics and cohort learning, found that group climate had a significant impact on the learning and performance that occurred within the cohort. This group climate then influenced the development of unresolved tensions within the group and the formation of group norms that could be either positive or negative in nature. The study found

that due to "the intensity of social relations within the cohort, some learning outcomes may be overshadowed by the affective learning that takes place" (Scribner & Donaldson, 2001, p. 628). Essentially, the complex dynamics of the group influenced the student learning that occurred due to the singular nature of the cohort experience. Framing the current study of student cohorts through a model that examines cohorts and their outcomes in terms of collective affect (group affective tone) and transference of affect (emotional contagion theory) is supported given Scribner and Donaldson's (2001) assertion that student cohorts "were most effective at producing affective outcomes" (p. 606) due to the complex dynamics of the cohort experience.

Group Affective Tone

The study of group level affect has attracted significant attention within the field of organizational science including in-depth reviews of the literature (Collins et al., 2013; Menges & Kilduff, 2015). One significant stream of research originated in a landmark study of group level affect by George (1990). The study, which examined affect within 26 work groups comprised of 254 participants, found that work team members developed a significant level of homogeneity in their personal affects which led to each group having a specific and unique group affective tone. Specifically, the hypothesis stating "Individual affect is consistent within work groups" (George, 1990, p. 109) was supported as the group's affect, measured by inter-rater reliability of within-group affect, was above the accepted cut-off level of .70 (R_{wg} = .87). George (1990) defined this group affective tone as "consistent or homogeneous affective reactions within a group" (p. 108).

This phenomenon was supported by subsequent studies. Bartel and Saaverda (2000) found that group affective tone occurred across 70 different work groups. The study examined emotional convergence leading to group affective tone through participant self-report of affect as

well as observable affect measured by trained observers. The study supported the findings of George (1990) regarding the existence of group affective tone. The study followed George's (1990) methodology utilizing the same statistical aggregation method of inter-rater reliability (Rwg) and added the measurement of interclass coefficient (*ICC*) to ensure that the variance between groups was greater than the variance within the work teams. This utilization of *ICC* analysis paired with *Rwg* provided increased statistical surety of the occurrence of group affective tone. The study, which examined eight categories of affect, found that groups achieved congruence across all affective domains. Only two affective categories, however, achieved the inter-rater reliability cut-off of .70 established by George: the negative affective experience of unpleasant affect (*ICC* = .55, $p < .001$; *Rwg* = .76); and activated (high arousal) unpleasant affect (*ICC* = .58, $p < .001$; *Rwg* = .72) (Bartel & Saaverda, 2000). The study's authors argued for a more flexible interpretation of inter-rater reliability with an *Rwg* of .50 suggesting "moderate convergence" and an *Rwg* of .70 and above indicating "substantial convergence" (Bartel & Saaverda, 2000, p. 214) in line with the initial creators of the *Rwg* statistical analysis (James, Demaree, & Wolf, 1984). This interpretation of inter-rater reliability has received some subsequent support in the literature (LeBreton & Senter, 2008) though an inter-rater reliability level of *Rwg* > .70 continues to be considered the gold standard cut-off point for assessing group affective tone (Collins, Lawrence, Troth, & Jordan, 2013).

Barsade (2002) further corroborated the phenomenon of group affective tone in a study of ninety four business school undergraduates. This study, which utilized a two-by-two between-subjects design, incorporated a trained confederate to induce positive or negative mood into the groups at both a high and low level of energy. The study, which utilized the emotional contagion theory as its explanatory principle for the transfer of mood, found evidence that group affective

tone was formed (M = 3.75, SD = 1.22, ICC = .72). The study also demonstrated that the purposeful induction of mood was possible across all conditions (positive and negative; high energy and low energy) with no significant differences found between the four conditions. These findings were corroborated through participant self-assessment of mood pre- and post-experiment as well as through observation.

The phenomenon of group affective tone has been shown to occur across diverse occupations as well. Two early studies (Totterdell, 2000; Totterdell, Kellett, Briner, & Teuchmann, 1998) were influential to the study of group affective tone as they demonstrated that group affective tone occurred outside of a contrived laboratory context and that group affect was independent of the positive or negative events the group may have experienced. Totterdell et al. (1998), in a study of nursing teams over a three week period, found a significant association between the individual affect of the nurses and the nursing team's collective affect. The study's participants, who were 65 community nurses comprising 13 teams, were asked to record their mood daily as well as any negative events or work hassles that occurred during the day. The study found that the moods of the individual nurses showed significant congruence to the mean mood of their team on that given day utilizing inter-rater agreement to justify aggregation (Rwg = .75 for general good mood; .73 for positive affect; .65 for negative affect). The study, in controlling for daily negative events and work hassles, also demonstrated that group affective tone could not be fully accounted for by shared experiences. Further, the study identified factors that made individual nurses more susceptible to group mood congruence including a participant's age (r = .39, p < .01), years of team service (r = .28, p < .01), level of commitment to the team (r = .30, p < .01), positive climate of the team (r = .27, p < .01), and hassles with other team members (r = -.30, p < .01). The final two variables indicated that the participant was more

likely to demonstrate mood congruence when they perceived the group to be positive and less likely to demonstrate mood congruence when there was interpersonal conflict between the participant and fellow team members. The study also performed a similar longitudinal analysis on a group of accountants and achieved results supporting the examination of nurse teams.

Totterdell (2000) also investigated the phenomenon of group affective tone within professional sports teams. The study examined four professional cricket teams over the course of a multi-day championship series and measured affect at different times throughout the course of the matches. The study found evidence of the formation of a positive group affective tone (referred to as team happy mood) with a significant level of congruence ($Rwg = .79$). The study also supported prior findings that participant age ($r = .70$, $p < .01$) and commitment to the team ($r = .65$, $p < .01$) increased affective congruence. The study controlled for positive and negative events that occurred within the game to rule out shared events as the sole cause of the shared affective state. The study also examined the influence susceptibility to emotional contagion and emotional expressivity had on the formation of group affective tone with mixed results. Participant susceptibility to emotional contagion was found to be positively correlated to the formation of group affective tone ($r = .46$, $p < .01$) though emotional expressivity did not achieve a level of statistical significance.

The above pair of studies (Totterdell, 2000; Totterdell et al., 1998) contributed to the understanding of group affective tone by providing a meaningful refutation to the argument that moods of group members may be independently similar due to the events occurring within and proximal to the group. Totterdell et al. (1998) noted that "the most likely alternative explanation is that team members respond similarly to shared events and hence give the illusion that their moods are linked" (p. 1513). The studies responded to this argument by controlling for events

occurring proximal to the group and demonstrated that mood transfer leading to group affective tone was a process in itself and not a byproduct of shared experience.

The existence of group affective tone provides insight into the nature of affective dynamics within a group, though the primary significance of group affective tone is in the implications it can have on group process and outcomes. Multiple studies have examined the outcomes of a group's development of both positive affective tone and negative affective tone. Positive affective tone within groups has been shown to provide a range of benefits to groups. Groups demonstrating positive affective tone have demonstrated decreased absenteeism (r = -.46; $p \leq .01$) (George, 1990), improved cooperation (r = .44; $p < .05$), decreased conflict (r = -.42; $p < .05$), and improved perceived individual task performance (r = .38; $p < .005$) (Barsade, 2002), as well as enhanced subjective sports performance (r = .49, $p < .01$) (Totterdell, 2000).

Sy et al. (2005), in a study of teams of university students, found that groups who achieved a positive group affective tone demonstrated increased coordination and decreased effort expenditure during a blindfolded tent assembly task. The study, which examined the influence leader mood had on followers, found that the mood of the leader had a direct impact on the moods of the followers within the group. Leaders who were induced with a positive mood transferred this emotional state to the group creating positive group affective tone. Likewise, leaders who were induced with a negative mood transferred the negative mood to the group creating negative group affective tone. The study also found that the teams that had either a positive or negative leader during the tent assembly task developed an affective tone after only an initial 7 minute task planning stage (Rwg = .89 for positive mood and Rwg = .92 for negative mood) indicating that this process occurs within a relatively short period of time. Groups with a positive affective tone produced significantly greater coordination on the task (M = 3.86, SD =

.77) than groups with a negative tone (M = 3.03, SD = 0.86; t (54) = 3.78, $p < .001$). Interestingly, the study found that negative group affective tone could produce positive group outcomes as well. The groups that formed a negative group affective tone were found to have exerted more effort (M = 3.93, SD = 0.86) than the positive groups (M = 2.98, SD = 0.83; t (54) = -4.17, $p < .001$). Additionally, a post hoc mediation analysis found that positive group affective tone fully mediated the association between leader mood and group participation (B = .49), t (53) = 3.29, $p < .01$) while negative group affective tone was found to partially mediate this relationship (B = -.35, t (53) = -2.69, $p < .05$). In essence, leader mood in itself did not inspire group member participation without the existence of group affective tone. This study not only demonstrated the positive impact of group affective tone on group processes but also the complexity that exists between leader mood, team outcomes, and the formation of group affective tone.

Tanghe et al. (2010) found evidence that positive group affective tone, when combined with high levels of team identification, positively influenced perceived team performance (B = .26, t = 2.11, $p < .05$) and team willingness to engage in organizational citizenship behaviors (B = .26, t = 2.28, $p < .05$). The study was notable in that it utilized a more rigorous statistical verification of group affective tone. In addition to utilizing the inter-rater reliability (*Rwg*) statistic utilized within previous studies, the methodology utilized two variants of interclass coefficients (*ICC*) to provide greater statistical verification of the creation of group affective tone. *ICC(1)* was utilized to measure the degree to which group members responded similarly and *ICC(2)* was used to assess the interrater agreement and reliability of the mean rating (Tanghe et al., 2010). This statistical method has since been supported as a valid way to assess for the formation of group affective tone (Collins et al., 2013; LeBreton & Senter, 2008). The study

also went beyond solely testing for the formation of group affective tone by examining how team identification impacted the relative strength of convergence. The study utilized an average deviation index (*AD*) (Burke & Dunlap, 2002) to determine:

> the extent to which a person's rating differs from the group (mean) rating by summing up the absolute values of these deviations and then dividing this score by the number of deviations. This measure thus indicates the extent to which group members are in agreement with other group members regarding their affective states. (Tanghe et al., 2010, p. 346)

The use of the average deviation index occurred only after group affective tone was proven to exist through the use of the *Rwg*, *ICC(1)*, *ICC(2)* method of justifying aggregation. By subsequently utilizing the *AD* index, the study was able to utilize the relative strength of the group affective tone as a variable in order to test an independent variable's influence on the degree of group affective tone. Subsequently, strength of group affective tone was found to be positively associated with strength of team identification.

Chi, Tsai, and Tseng (2013) also utilized the degree of group affective tone as a variable in a study of group affective tone's mediating effect on the relationship between customer negative actions and subsequent feelings of hostility in service providers. The study found that the presence of a positive group affective tone moderated the relationship between a negative event with a customer and subsequent feelings of hostility in a service provider ($y = -.06$, $p < .05$) in which *y* represents the decrease in feelings of hostility brought about by positive group affective tone measured through hierarchical linear modeling. Further, when positive affective tone was high (measured as one standard deviation above the mean), negative customer events had no influence on hostility. This was in contrast to the strong relationship between negative

customer events and felt hostility when positive group affective tone was low (measured as one standard deviation below the mean). A similar though inverse relationship was found in the study of degree of negative group affective tone. This study provided further insight into the influence group affective tone has on interaction dynamics while supporting the assertion made by Tanghe et al. (2010) on the importance of measuring degree of congruence of group affective tone to fully appreciate the nuance of the phenomenon.

In addition to the positive benefits of group affective tone found in the above studies, group affective tone has also been shown to influence a team's feeling of potency, which is the belief that the team is capable and effective. Volmer (2012), in a laboratory study of 63 students placed into three-person teams, found that the team's leader was able to transfer his or her mood to team members leading to the formation of group affective tone. Further, a mediation analysis revealed that group affective tone completely mediated the relationship between the team leader's mood and the team's sense of potency ($B = 0.46$, $p < 0.05$). This is a significant finding regarding the positive influence group affective tone can have on teams. The finding that the leader's affect had no significant influence on a team's confidence (potency) without the team forming a group affective tone supported earlier findings from Sy et al. (2005), suggesting that the leader-follower relationship requires the intra-team dynamic of group affective tone to occur to impact group process.

Group affective tone does not only generate positive group outcomes. Chi and Huang (2014) demonstrated that group affective tone had both positive and negative repercussions in a study of research and development teams within high technology firms. The study, which examined affective states and consequences across 61 teams from 32 organizations, studied the relationships between transformational leadership, group affective tone, and the variables of

team learning goal orientation (TLGO) which is "team members' shared tendencies to develop competence by acquiring new skills and learning from experience" (Chi & Huang, 2014, p. 305) and team avoiding goal orientation (TAGO), which is "the aggregate levels of team members' tendencies to avoid negative competence judgments from others" (p. 305) which may lead to maladaptive avoidance of risk. The study utilized the triangulation method of determining the occurrence of group affective tone (*Rwg*, *ICC(1)*, *ICC(2)*) with positive group affective tone (*Rwg* = .93, *ICC(1)* = .21, *ICC(2)* = .58) and negative group affective tone (*Rwg* = .95, *ICC(1)* = .12, *ICC(2)* = .40) reaching levels to justify the existence of a group affective tone. The authors noted that the *ICC(2)* levels "fell below the conventionally accepted value of .70" (Chi & Huang, 2014, p. 312) though justified moving forward with their assumption of group affective tone given LeBreton and Senter's (2008) warning against overreliance on *ICC(2)* scores as well as assertions that high *Rwg* and *ICC(1)* scores justify aggregation. The results of the study found that positive group affective tone was positively correlated with transformational leadership (r = .51, $p < .01$) and TLGO (r = .63, $p < .01$) while negatively correlated with TAGO (r = -.35, $p <$ .01). Further, path analysis demonstrated that positive group affective tone positively influenced team performance as measured by an increase in work quality and a decrease in critical errors (B = .27, $p < .01$; 95% CI = [.10, .43]). Compared to the positive affective tone teams, the study found that teams that developed a negative group affective tone were positively correlated with TAGO (r = .37, $p < .01$), negatively correlated with TLGO (r = -.48, p < .01), and demonstrated a decrease in performance (B = -.43, p < .01; 95% CI = [-.57, -.29]). This study showed the positive and negative implications of group affective tone on team processes.

As demonstrated in the above study by Chi and Huang (2014), negative group affective tone can influence group performance. George's (1990) original study on group affective tone

found that groups exhibiting a negative group affective tone demonstrated decreased prosocial behaviors which encompass behaviors deemed beneficial to the organization *(r* = -.57, $p \leq .01$). Additional research has supported the assertion that a negative group affective tone can be detrimental to overall group performance. Cole et al. (2008) studied negative group affective tone within the context of a multinational automotive components company with plants in the United States and Germany. The study, which examined team dysfunctional behavior, found evidence for the formation of a negative group affective tone (*Rwg*: .88, *ICC(1)*: .26, *ICC(2)*: .60, $F(60, 203) = 2.51$, $p < .01$). The study found that the development of negative group affective tone was positively correlated with dysfunctional team behavior ($r = .42$, $p < .01$) and negatively correlated with team performance as rated by a supervisor ($r = -.40$, $p < .01$). A regression analysis further supported the positive association between dysfunctional team behavior and negative group affective tone ($B = .62$, $t = 3.72$, $p < .05$) and a negative association between negative group affective tone and team performance controlling for dysfunctional team behavior ($B = -.53$, $t = -4.17$, $p < .05$). This last finding is significant because it demonstrated that a negative group affective tone, in itself, can have a deleterious effect on team performance regardless of any overt dysfunctional behaviors of team members. Finally, the study found that this relationship was mediated by nonverbal emotional expressivity in that the relationship between negative affective tone and team performance was lessened in teams that had low nonverbal expressivity ($B = -.52$, $t = 2.17$, $p < .05$).

The body of research on group affective tone suggests that this group-level process can present as either a positive or negative phenomenon and have a significant impact on group processes and outcomes. This is salient to the study of the student cohort model as it has been shown that cohorts develop affective identities (Scribner & Donaldson, 2001) which can produce

both positive or negative group level processes (Beachboard et al., 2011; Bista & Cox, 2014) and outcomes (Dyson & Hanley, 2002). The examination of group affective tone within the student cohort model must also include an examination of potential mechanisms influencing its development in order to better understand how group affective tone forms. One theoretical explanation for the development of group affective tone that has received a significant amount of attention and study is emotional contagion theory (Collins et al., 2013).

Emotional Contagion Theory

Emotional contagion theory is "the tendency to automatically mimic and synchronize facial expressions, vocalizations, postures, and movements with those of another person and, consequently, to converge emotionally" (Hatfield et al., 1994, p. 5). The theory operates on three propositions: (a) individuals synchronize with and mimic the non-verbal movements and expressions of others (such as facial expressions, voice, posture, movements, and instrumental behaviors); (b) this unconscious motor synchrony affects the subjective emotional experiences of the individual via unconscious afferent feedback and self-perception of emotional states inferred from the mimicked affect; (c) individuals experience emotional contagion given the first two propositions (Hatfield et al., 1994, pp. 10-11).

This unconscious motor synchrony has been attributed to the mirror neuron system which has been shown to be responsible for the motor mimicry described above (Rizzolatti & Craighero, 2004). This motor synchrony subsequently has been shown to elicit emotional responses as proposed in the emotional contagion theory. Flack (2006), in a study that had participants assume facial expressions, bodily postures, and vocal expressions mimicking the emotions of anger, sadness, fear, and happiness, found that these emotive patterns elicited the corresponding emotional states with facial expressions and bodily postures being the most

consistent influence. Hess and Blairy (2001) found evidence of motor mimicry of happy and sad facial expressions as well as emotional contagion between observed facial expressions and participants. The study, which utilized EMG recordings of the facial muscles responsible for the mimicked expressions, further contributed to the study of motor mimicry and emotional contagion by providing "evidence for mimicry and emotional contagion in situations where relatively realistic, low intensity, idiosyncratic emotional facial expressions served as stimulus material" (p. 138). This is significant in that it more closely captured the process of motor mimicry and emotional contagion across facial expressions that may be encountered within a variety of natural contexts.

Neumann and Strack (2000) examined the occurrence of emotional contagion through speech by having participants listen to text read in a happy, sad, or neutral voice. The study found that the emotionally inflected speech produced a congruent mood state in the listener. Pre-tests within the experiment found that the emotional expressions utilized were subtle when participants were not cued to the emotion being expressed (Neumann & Strack, 2000). This supports findings from the Hess and Blairy (2001) study, demonstrating that subtle emotions are potent enough to cause emotional contagion to occur. Emotional contagion via speech was further studied within a natural context by Rueff-Lopes, Navarro, Caetano, and Silva (2015). The study, which analyzed 8,747 instances of emotional display between call center workers and their customers, found evidence of vocal mimicry between the communicating individuals. Further, the study found greater susceptibility to emotional contagion in the female customers and a greater propensity for vocal mimicry of negative emotion.

The study of emotional contagion is important due to the practical implications it has on groups and teams within organizations. In a review of the literature, Barsade (2009) stated the

concept of emotional contagion "has changed and advanced our field's understanding of group dynamics in work teams by helping elucidate a mechanism through which group emotion can be created" (p. 146). Indeed, this "lower key, day-to-day contagion" (Barsade, Brief, & Spataro, 2003, p. 20) is important to study as it is "generally expected to be the result of a constant, subtle, continuous transfer of moods among individuals and groups and, perhaps, through entire organizations" (p. 20). This premise supports the importance of studying emotional contagion within natural settings to fully appreciate the implications of this phenomenon within the context of groups such as student cohorts.

The service industry is one such natural context that has received attention due to the impact emotional contagion can have on both sales associates and customers. Pugh (2001) studied the impact emotional contagion had on service encounters within banks. The study, which examined the existence and impact of emotional contagion involving the customer interactions of 131 bank tellers across 39 bank branches, utilized a path analysis to examine how bank teller affect influenced the customer experience. The results of the study demonstrated that emotional contagion occurred between employees exhibiting a positive affect and customers who subsequently "caught" the positive mood from the employee ($B = .19$, $p < .05$). This experience of emotional contagion was found to have an organizational impact as the bank customers who had caught the positive emotions from the tellers provided positive evaluations of service quality to the organization ($B = .16$, $p < .05$). Additionally, the study found that bank teller emotional expressivity had a positive influence on their display of emotion ($B = .22$, $p < .01$) which subsequently influenced the contagion of emotion to the customer. In essence, expressivity seemed to amplify the process of emotional contagion.

Another study of emotional contagion within a natural context expanded the earlier work by Pugh (2001) and explored the dynamics of emotional contagion across service failure experiences and subsequent service recovery. Du, Fan, and Feng (2011) utilized an experimental design in which a pair of restaurant customers initially experienced a poor service encounter via a server displaying either a high level of negative affect or a low level of negative affect. After this initial encounter, a manager performed service recovery with the customers displaying either a high level of positive affect or a low level of positive affect. The results of the study demonstrated that emotional contagion occurred across all affective conditions with level of emotion displayed impacting degree of contagion. High level negative affect caused greater emotional contagion (mean negative affect change: 3.22, $p < .001$) than low level negative affect (mean negative affect change: 2.78, $p < .001$). High level positive affect caused greater emotional contagion (mean positive affect change: 2.49, $p < .001$) than low level positive affect (mean positive affect change: 0.94, $p < .001$). Additionally, customer susceptibility to emotional contagion was found to moderate the degree of emotional contagion of high level negative affect ($B = .42$, $p < .01$) and low level negative affect ($B = .36$, $p < .01$) as well as high level positive affect ($B = .54$, $p < .01$) and low level positive affect ($B = .45$, $p < .01$). The results demonstrated that the moderating effect of susceptibility to emotional contagion was greater during experiences of higher emotional display. The study additionally found that while neither service recovery condition fully restored customer negative affect back to pre-experiment levels, the high level positive affect condition more closely returned the customers to their baseline level of affect. In essence, the results indicated that the impact of negative emotional contagion could be partially mitigated by purposeful interjection of positive emotion. Together these studies inform the present study's examination of emotional contagion within student cohorts as they

demonstrated that naturally occurring emotions spread as readily as experimentally induced emotions (Pugh, 2001) and that both high energy and low energy emotions spread to others (Du et al., 2011) which captures the full range of emotions that may be expressed within the context of the student cohort.

The phenomenon of emotional contagion has also received attention within the context of the leader-follower dynamic. Bono and Ilies (2006) found evidence of emotional contagion in a study examining emotional contagion and charismatic leadership. The study, which sought to explore potential mechanisms of charismatic leadership's influence on followers, found evidence that leaders' positive emotional facial expressions positively correlated to the mood states of followers ($r = .18$, $p < .05$). The emotional contagion that occurred between leaders and followers was found to have tangible consequences. A regression analysis revealed that leader effectiveness, irrespective of actual performance, was positively influenced by both the leader's positive emotional expression ($B = .30$, $p < .01$) as well as the subsequent positive mood of the follower ($B = .30$, $p < .01$).

Another study which examined the influence of emotional contagion on the leader-follower dynamic studied the impact negative emotional contagion had on leader perception (Lewis, 2000). The study had 368 participants examine videotaped speeches of a trained actor portraying a CEO delivering troubling news about their organization. The speeches had the same content though the CEO read the speech using a variety of affects. The study found that the participants experienced emotional contagion from the leader's emotive speech with angry emotion and sad emotion evoking like emotional reactions within the followers. Post-hoc analysis of the results revealed that negative affective displays of leaders had a deleterious influence on effectiveness ratings with significant differences between neutral affective display

(mean rating 3.03, $p < .001$), angry affective display (mean rating 2.59, $p < .001$), and sad affective display (mean rating 2.29, $p < .001$). The results of this study, along with the study by Bono and Illies (2006), demonstrated that emotional contagion significantly influenced the leader-follower dynamic with significant repercussions. This is relevant as the student cohort may have both formal leadership (faculty) and informal leadership (influential cohort members) influencing the dynamic of the cohort.

Hatfield et al. (1994) identified certain personal traits that make the phenomenon of emotional contagion more likely to occur. Some individuals are more prone to catching the emotions of others while some individuals are stronger transmitters of emotion. This propensity towards the catching or spreading of emotions has significant implications on the occurrence and pattern of contagion within groups.

Susceptibility to emotional contagion. Emotional contagion theory posits that individuals may be more or less sensitive to the emotions of others and can be more likely to subsume the emotions of others as their own (Hatfield et al., 1994, p. 147). Elements that contribute to one's susceptibility to emotional contagion include attention, interrelatedness, the ability to read the non-verbal communication of others, the tendency to mimic these non-verbal expressions, self-awareness of emotional responses, and emotional reactivity (p. 148).

The positive association between susceptibility to emotional contagion and emotional reactivity was supported in a study by Bhullar (2012). The study, which utilized 113 university student participants, found a significant correlation between susceptibility to emotional contagion and the levels of emotions generally experienced ($r = .36$, $p < .01$). The study also explored how a mood congruent bias, which is the concept of an individual being more susceptible to like emotions, influences the process of emotional contagion. Bhullar (2012) found

mixed results: participants who generally experienced positive emotions were more susceptible to positive emotional displays (happy: $r = .39$, $p < .01$; love: $r = .21$, $p < .01$) while participants who generally experienced negative emotions were more susceptible to certain negative emotional displays (anger: $r = .20$, $p < .05$; fear ($r = .29$, $p < .01$) though not others (sadness not statistically significant).

Manera, Grandi, and Colle (2013) further supported the existence of susceptibility to emotional contagion while also finding that this phenomenon had discriminatory effects. The study, which presented participants with photos of both authentic and non-authentic smiles, found that susceptibility to emotional contagion positively influenced both the accuracy ($B = .07$, $p = .026$) and sensitivity ($B = .10$, $p < .003$) of authentic smile detection. Interestingly, the study found that participants who were more susceptible to negative emotional contagion were more accurate in identifying non-authentic smiles than participants who were more susceptible to positive emotions. This finding provided nuance to the earlier studies of emotional contagion within the service industry which examined the purposeful use of emotion to elicit a positive service experience (Pugh 2001; Du et al., 2011). In essence, the purposeful use of emotion to elicit emotional contagion may be vulnerable to being detected as non-authentic by individuals who are generally more susceptible to certain forms of emotion.

Ilies, Wagner, and Morgeson (2007) examined the interaction between susceptibility to emotional contagion and the formation of group affective tone within the context of semester long student group experiences. The study identified the existence of both positive group affective tone ($Rwg = .96$, $ICC(1) = .20$, $ICC(2) = .49$) and negative group affective tone ($Rwg = .93$, $ICC(1) = .19$, $ICC(2) = .46$) within the student groups. Additionally, susceptibility to emotional contagion had a significant impact on the formation of both positive group affective

tone (B = .32; standardized B = .15, p < .05) and negative group affective tone (B = .26; standardized B = .12, p < .12). This study demonstrated the influence susceptibility to emotional contagion had on the transfer of emotions and provided a link between group affective tone and emotional contagion theory. Further, the study is relevant to the current study on student cohorts because it explored the phenomena of group affective tone and emotional contagion within the naturalistic context of a university student group over time.

Johnson (2008) also studied susceptibility to emotional contagion's influence on the process of emotional contagion within an educational environment, albeit within a K-12 context. The study focused on emotional contagion's influence on leader-follower outcomes by examining how a principal's affect influenced teachers' affect. The study found that principal affect was positively related to teacher affect: a positive relationship was found between principal positive affect and teacher positive affect and a negative relationship was found between principal negative affect and teacher positive affect. Further, this study found that teacher susceptibility to emotional contagion increased the potency of this phenomenon. The results indicated that the correlation between leader and follower positive affect increased as follower susceptibility to emotional contagion increased (y = .11, p < .05) and that a negative correlation between leader negative affect and follower positive affect increased as follower susceptibility to emotional contagion increased (y = -.08, p < .05) (Johnson, 2008). This study provided further evidence that susceptibility to emotional contagion is influential in the process of emotional contagion.

The above studies demonstrated that susceptibility to emotional contagion can influence the emotional contagion process. There is also evidence that the trait of susceptibility to emotional contagion has group level influences that extend beyond solely moderating the

emotional contagion process. In particular, a study of 507 physician general practitioners by Bakker et al. (2001) found evidence that the trait of susceptibility to emotional contagion is positively correlated to emotional exhaustion and burnout. Susceptibility to emotional contagion was positively correlated with the burnout indicators of emotional exhaustion ($r = .27$, $p < .001$), depersonalization ($r = .13$, $p < .01$) and negatively associated with a sense of personal accomplishment ($r = -.30$, $p < .001$). This trait also influenced the spread of these burnout complaints to other general practitioners via emotional contagion ($r = .09$, $p < .05$) though at a relatively weak level. The results of this study mirrored earlier work by Verbeke (1997), which linked susceptibility to emotional contagion and burnout indicators within sales associates and provided insight into the individual and group level influences of susceptibility to emotional contagion.

Transmission of emotional contagion. The ability of an individual to transmit emotions to a different person is another intrapersonal trait that influences the process of emotional contagion. An individual is considered to be a powerful transmitter of emotion when they meet the following three propositions:

> (a) They must feel, or at least appear to feel, strong emotions; (b) they must be able to express (facially, vocally, and/or posturally) these strong emotions; and (c) they must be relatively insensitive to and unresponsive to the feelings of those who are experiencing emotions incompatible with their own. (Hatfield et al., 1994, p. 130)

Of particular interest to the current study is the impact strong transmitters of emotional contagion have within a group context.

Transmission of emotional contagion within groups was researched in a longitudinal study utilizing an experimental design that followed 116 small self-managing teams of students

(Sy et al., 2013). Each group was assigned a leader who, after being assessed for emotional expressivity, experienced positive, negative, or neutral mood induction prior to interacting with the group. The study found that leader expressivity was significantly related to the emotional contagion experienced by the team. Emotional expressivity was positively correlated to the transmission of positive affect from leader to team ($r = .49$, $p < .001$) and the transmission of negative affect from leader to team ($r = .44$, $p < .01$). In the neutral mood condition, emotional expressivity did not enhance either positive or negative group affects which is in line with the principles of emotional contagion. This study of emotional expressivity's influence on emotional contagion also utilized path analysis to examine the influence the induced group mood had on leader effectiveness ratings. Groups that underwent positive emotional contagion had a subsequently higher perception of leader effectiveness ($B = .36$, $p < .05$) and groups that experienced negative emotional contagion held a lower perception of leader effectiveness ($B = -.26$, $p < .01$). In essence, expressive leaders had a disproportionately greater influence on their effectiveness ratings based on their baseline affective traits than their less expressive counterparts. This finding was supported in a study by Illies, Curseu, Dimotakis, and Spitzmuller (2013), which found that emotional expressivity was positively associated with both perception of leader effectiveness and follower effort.

The relationship between emotional expressivity, emotional contagion, and susceptibility to emotional contagion was also studied within a military context. Cheng, Yen, and Chen (2012), in a study of 210 soldiers from eight different units within the Taiwanese Army, found that emotional expressiveness impacted group emotional contagion through a three way interaction effect. The study, which assessed the influence of transformational leadership on subordinate job involvement, found that this process only occurred when the leader was a strong

transmitter of emotional contagion and the followers had high susceptibility to emotional contagion ($B = .21$, $p < .05$). This study demonstrated the inherent complexity of the emotional contagion process within groups and further emphasized the necessity to take into account the variables of both transmission of and susceptibility to emotional contagion when examining this process as a group level phenomenon.

Emotional contagion within the classroom. Emotional contagion within the natural environment of the classroom has received limited attention within the literature though research has found evidence that this phenomenon occurs within this context as well. Mottet and Beebe (2000) studied emotional convergence within the university classroom and found that student emotions converged with their perception of their instructor's affect. The study examined different phases of emotional contagion that occurred within the classroom between instructor and student and found a positive association across each phase. A positive correlation was found between the instructor's non-verbal immediacy and student nonverbal responsiveness ($r = .48$, $p < .000$), the students' subsequent non-verbal responsiveness and their overall emotional response across three affective domains (pleasure: $r = .53$, $p < .000$; arousal: $r = .54$, $p < .000$; dominance: $r = .50$, $p < .000$), and ultimately a positive relationship between the students' affect and the students' perception of their instructor's affect (pleasure: $r = .60$, $p < .000$; arousal: $r = .32$, $p < .000$; dominance: $r = .12$, $p < .000$). A regression analysis of the study's results indicated that 36% of the variance in the students' emotional response was attributed to students' perception of instructor affect (Mottet & Beebe, 2000). Essentially, one third of felt student emotion was influenced by the process of emotional contagion within the classroom.

The above finding of emotional contagion occurring within an educational context was supported in a study of 178 music teachers and 605 students (Baker, 2005). The study, which

examined emotional contagion's influence on the transfer of flow (the state of complete absorption in a task), utilized structural equation modeling and found evidence for the transfer of this state from teacher to student ($B = 1.15$, $p < .05$). The sum of the evidence regarding the occurrence of emotional contagion within an educational context, however limited, does provide linkage between the greater body of emotional contagion research and the unique context of the classroom dynamic. Further research is needed, however, to better understand emotional contagion within the student cohort model and the impact it may have on student satisfaction.

Student Satisfaction and Affect

One potential consequence of the development of a cohort-level group affective tone is the ramifications it may have on student satisfaction. Lent et al. (2005), in a study of social cognitive predictors of both general and domain specific satisfaction within a sample of 177 university students, found that affect had a direct influence on the degree of both life satisfaction ($B = .24$, $p < .05$) and domain-specific (in this case academic) satisfaction ($B = .22$, $p < .05$). In particular, affect was associated with the social components of academic satisfaction. This is important as the study found students reported that the academic and social domains of their educational experience to be of nearly equally importance. This holds relevance to the current study given the strong social components of the student cohort model.

The findings of a link between affect and satisfaction were subsequently supported in a study on the predictors of college student life and academic satisfaction within a sample of 457 Mexican American college students (Ojeda et al., 2011). The study found that, among other variables, positive affect contributed to both academic ($B = .10$, $p < .05$) and life satisfaction ($B = .11$, $p < .05$).

Additional studies within this line of research have found supportive, though more mixed evidence on the link between affect and satisfaction. Garriott et al. (2015), in a study testing social cognitive predictors of satisfaction in both first and non-first generation college students, did not find a direct relationship between affect and academic satisfaction though did find an indirect link between positive affect and academic satisfaction via positive affect's influence on student efficacy ($B = .43$, $p < .001$). Research by Singley, Lent, and Sheu (2010), which examined the social cognitive predictors of satisfaction within a sample of 769 college students, found evidence that positive affect was linked to life satisfaction ($B = .06$, $p < .05$) though not academic satisfaction.

Taken as a whole, the research on the social cognitive predictors of satisfaction provides support for the potential influence affect may have on student satisfaction. This is an important concept as the formation of group affective tone has been found to directly influence group level satisfaction. Mason and Griffin (2005), in a study of 66 work groups across 9 different organizations, found a positive correlation between group satisfaction and positive group affective tone ($r = .42$, $p < .01$) as well as a strong negative correlation between group satisfaction and negative group affective tone ($r = -.61$, $p < .001$). The relationship between affect and satisfaction is important given the ramifications student satisfaction and dissatisfaction can have on both students and universities.

Student satisfaction has been linked to multiple factors important to both student success and university operations. Rhodes and Nevill (2004) utilized focus groups and surveys to examine university student satisfaction within a sample of 185 students. The study found that student satisfaction was linked to both students' perception of academic and social integration within the university as well as being a factor influencing students' intentions of returning to the

university. This link between student satisfaction and retention has been supported through research on data generated by the Student Satisfaction Inventory (Schreiner & Juillerat, 1994). Utilizing a logical regression analysis on the Student Satisfaction Inventory data from 27,816 students across 65 universities, Schreiner (2009) found that student satisfaction indicators were significant in their ability to predict student retention. The study found that "satisfaction indicators almost doubled our ability to predict retention beyond what demographic characteristics and institutional features could predict" (Schreiner, 2009, p. 3). In particular, the campus climate sub-scale, which included questions such as "most students feel a sense of belonging here," demonstrated significant predictive value to where high scores on the scale increased the chances of student persistence by 80%. (Schreiner, 2009). This predictive relationship between student belonging and retention is especially relevant given the connection between social integration and student satisfaction previously found by Rhodes and Nevill (2004).

The relationship between a student's sense of belonging, satisfaction, and retention was further examined by Roberts and Styron (2010), who examined the perceptions of 172 university students on the areas of services, interactions, and experiences within an individual college of a greater university system. The study found that students who had lower perceptions of social connectedness to their college were less likely to persist than students who felt greater social connectedness ($F = 1, 263) = 4.19$, $p = .042$). This led to the authors' recommendation that college's students "should be grouped together into cohorts so they take their classes together as a learning community" (Roberts & Styron, 2010, p. 8-9). This recommendation presumes that the social connectedness students would achieve through a cohort model would be positive, though the review of the literature on the cohort model suggests that this cannot be safely

assumed. The current study will add to the understanding of how the student cohort model influences student satisfaction.

Conclusion

The synthesis of the body of literature reviewed above shows the need to examine these three distinct areas of research (cohort education, group affective tone, and emotional contagion) as a whole to gain greater perspective on the processes and outcomes of the cohort educational model. The cohort literature has identified the phenomenon of group cohesion as a powerful driver of the cohort experience (Beachboard et al., 2011; Bista & Cox, 2014; Greenlee & Karanxha, 2010; Harris, 2006; Maher, 2005). This high degree of group cohesion fostered by the cohort model is a significant aspect of the cohort student experience yet the literature has not adequately examined how this influences the cohort experience. The student cohort model can produce outcomes that are either adaptive (Beachboard et al., 2011; Bista & Cox, 2014; Greenlee & Karanxha, 2010; Harris, 2006; Maher, 2005; Zhao & Kuh, 2004) or maladaptive (Beachboard et al., 2011; Jaffee, 2007; Maher, 2004; Radencich et al., 1998) to the overall cohort experience. To date, scant evidence exists to explain why this occurs. The present study posits that the high degree of cohesion among cohort members together with the affective outcomes this level of cohesion engenders (Scribner & Donaldson, 2001) offers compelling evidence to suggest that group affective tone may provide a means to understand cohort variability.

Examining the influence of group affective tone (George, 1990) on the student cohort model may help explain the unpredictable nature of the cohort experience through an examination of group level affect. Group affective tone has been shown to create both positive group outcomes (Barsade, 2002; Chi et al., 2013; George, 1990; Sy et al., 2005; Tanghe et al., 2012; Volmer, 2012) and negative group outcomes (Chi & Huang, 2014; Cole et al., 2008;

George, 1990). The current study's attempt to reconcile the student cohort literature with the literature on group affective tone is a means to better understand why cohort variability exists. The relevance of understanding a cohort's group affective tone is further supported by the body of literature demonstrating affect's relationship to satisfaction (Garriott et al., 2015; Lent et al., 2005; Ojeda et al., 2011; Sibley et al., 2010) and the subsequent importance student satisfaction holds for universities (Mason & Griffen, 2005; Rhodes & Nevill, 2004; Schreiner, 2009).

The body of literature also provides compelling evidence that individual traits influence the process of group affective tone. The traits of susceptibility to emotional contagion (Bhuller, 2012; Ilies et al., 2007; Johnson, 2008; Manera et al., 2013) and transmission of emotional contagion (Cheng et al., 2012; Sy et al., 2013) have been demonstrated to significantly influence affective convergence within groups. This study sought to examine these traits within the context of the student cohort model to gain an understanding of how these variables may influence the formation of group affective tone.

Chapter 3: Methodology

Introduction

This study tested the following hypotheses which may benefit those interested in studying how group affective tone and emotional contagion influence cohort dynamics within the field of higher education. The study's aim was to produce generalizable information through the use of quantitative cross-sectional survey design.

Research Questions

1. Does affective convergence occur within student cohorts forming group affective tone?
2. Does positive group affective tone positively correlate to student satisfaction with their cohort experience?
3. Does negative group affective tone negatively correlate to student satisfaction with their cohort experience?
4. Does susceptibility to emotional contagion positively correlate to the strength of affective convergence among cohort members?
5. Does transmission of emotional contagion positively correlate to the strength of affective convergence among cohort members?

Hypotheses

1. Affective convergence occurs within student cohorts forming group affective tone.
2. Positive group affective tone positively correlates to student satisfaction with their cohort experience.
3. Negative group affective tone negatively correlates to student satisfaction with their cohort experience.

4. Susceptibility to emotional contagion positively correlates to the strength of affective convergence among cohort members.

5. Transmission of emotional contagion positively correlates to the strength of affective convergence among cohort members.

Theoretical Framework

The theoretical framework of the study is emotional contagion theory (Hatfield et al., 1994). The current study explores how emotional contagion influences affective convergence within student cohorts leading to the formation of group affective tone. Specifically, emotional contagion theory is utilized within the study's hypotheses and research questions to explore how susceptibility to emotional contagion and transmission of emotional contagion influence the degree to which affective convergence occurs within student cohorts.

Sample

The population of interest for the current study is university students in undergraduate cohort programs. The study used a convenience sample of participants from a private, non-profit university system with 11 campuses located across the United States. Potential participants for the study were any student who was currently enrolled within a primarily on-ground undergraduate educational program (operationalized as a program of study with 25% or less online course delivery) which utilized a student cohort model. The targeted sample size for the study was 54 student cohorts within the university system that utilize the cohort model. The target cohort size varied based on size of cohort and level of participation though a minimum of three cohort members per cohort were required to run the required statistical analysis (Chi, Tsai, & Tseng, 2013; Sy, Cote, & Saavedra, 2005; Tanghe, Wisse, & van der Flier, 2010; Volmer, 2012). Survey links were emailed to all potential study

participants who met the above criteria. Participants were invited to enter a secondary survey in which they were able to register for a drawing for $75 to be donated to a charity or cause of their choice. The survey design allowed organization of returned surveys into cohorts to allow for multi-level analysis to occur.

Setting

The setting for the study was a private, non-profit university system located within the United States. The university system within this study is composed of 11 campus locations.

Measures

The Positive and Negative Affect Schedule (PANAS): The PANAS, developed by Watson, Clark, and Tellegen (1988), was used to measure the affect of the study participants. The scale measures individuals on two independent dimensions: positive affect and negative affect. Ten items measure an individual's positive affect (PA) which is "the extent to which a person feels enthusiastic, active, and alert. High PA is a state of high energy, full concentration, and pleasurable engagement whereas low PA is characterized by sadness and lethargy" (Watson et al., 1988, p. 1063). The scale also includes ten items that measure an individual's negative affect (NA) or the "general dimension of subjective distress and unpleasurable engagement that subsumes a variety of aversive mood states, including anger, contempt, disgust, guild, fear and nervousness, with low NA being a state of calmness and serenity" (Watson et al., 1988, p. 1063).

The PANAS scale has been demonstrated to have good internal consistency reliability with a Cronbach alpha of .86-.90 on the PA scale and .84-.87 on the NA scale (Watson el al., 1988, p. 1065). Factorial validity of the two scales (PA between .89-.95

and NA between .91-.93) demonstrated the validity of the two affect constructs (Watson el al., 1988, p. 1066). The PANAS has been utilized as a measure of affect in the testing of emotional contagion across multiple studies (Bhulllar, 2012; Du et al., 2011; Ilies et al., 2007).

Emotional Contagion Scale: The emotional contagion scale (Doherty, 1997) is a 15-item scale that measures an individual's susceptibility to emotional contagion across five constructs: love, happiness, fear, anger, and sadness. The scale, which contains questions such as "If someone I'm talking to begins to cry, I get teary eyed" and "I tense when overhearing an angry quarrel" (Doherty, 1997, p. 136) has been shown to have significant internal reliability (Cronbach alpha .90) and construct validity was confirmed across multiple established and relevant measures. This scale has been used within multiple research studies examining susceptibility to emotional contagion (Bhullar, 2012; Ilies et al., 2007; Manera et al., 2013).

Emotional Expressivity Scale: The emotional expressivity scale (Kring, Smith, & Neale, 1994) is a 17-item scale that measures emotional expressivity, or the "individual differences in the extent to which people outwardly display emotions" (p. 934). The scale, which utilizes a six-point Likert scale, contains statements such as "people can read my emotions" and "even if I am feeling very emotional, I don't let others see my feelings" (Kring el al., 1994, p. 938). The scale has been proven to be a reliable measure of emotional expressivity (Cronbach alpha .91; four week test-retest reliability .90) and has demonstrated both convergent and discriminant validity (Kring el al., 1994).

Intrinsic Need Satisfaction Questionnaire: Social Relatedness Subscale: The social relatedness subscale of the Intrinsic Need Satisfaction questionnaire (which also

includes the subscales of autonomy and competence) is comprised of four statements rated across a four-point Likert scale (Kunter, Baumert, & Koller, 2007). The scale questions are as follows: "I feel good about being with my classmates. I experience a sense of belonging. I feel accepted by my classmates. I feel understood by my classmates" (Kunter el al., 2007, p. 507). The social relatedness subscale has acceptable internal reliability (Cronbach alpha: .84; item factor loading between .73-.78). The social relatedness subscale is relevant to the study of student satisfaction with the cohort experience given that the social/affective nature of the scale's questions align with the affective cohort outcomes of sense of community and cohesion (Greenlee & Karanxha, 2010; Harris, 2006).

Data Collection Procedures

Data collection began once IRB approval was granted through Bethel University and IRB and administrative approval was granted at the sites where sampling was conducted. The survey utilized the above established scales with no modification made to the original scale items as well as demographic information that included cohort identifiers to allow aggregation of cohort members. The survey tool was created using Qualtrics. A link to the survey was included in an email that was sent to all potential study participants. The email containing the survey link included information that explained the purpose of the study, a brief explanation of what the survey entailed, and that participant consent was provided via access to the survey through the embedded link. An additional statement on the email explained that the results of the survey were confidential as participant names were not attached to the survey results, information from individual surveys would only be published in aggregate, and the completed

surveys would be stored on a secured computer only accessible to the primary investigator. The survey was distributed by program chairs of the selected cohorts. The survey remained open for seventeen days with a reminder sent out to the survey recipients at the midpoint of the survey. Survey results were ported to SPSS for data analysis once the data was collected.

Data Analysis

The study utilized both multi-level modeling and correlational statistics (Vogt, 2007). The data generated from the surveys were transferred from Qualtrics to SPSS for statistical analysis. Hypotheses were analyzed as follows:

Hypothesis 1: Affective convergence occurs within student cohorts forming group affective tone.

Testing hypothesis one utilized multi-level modeling in order to determine formation of group affective tone. This was done by analyzing cohort-level student affect measured by the Positive Affect Negative Affect Schedule (PANAS) (Watson et al., 1988). The preferred statistical method for measuring group affective tone is a combination of statistical analyses (triangulation) to assess inter-rater agreement (*Rwg*) and inter-rater reliability (*ICC(1)* and *ICC(2)*) (Collins et al., 2013; Du et al., 2011; Sy et al., 2005). Pre-established benchmarks to justify aggregation (and the presence of group affective tone) weree utilized (LeBreton & Senter, 2008).

The study of group affective tone must account for the inherent orthogonal or independent nature of positive affect and negative affect within groups (Watson et al., 1988). In essence, groups can have both a positive affective tone and a negative affective tone as long as both variables meet the accepted levels for aggregation previously discussed. A high

or low positive affect within a group is independent from the group's high or low negative affect. To this end each student cohort contained both positive affect and negative affect as variables to be measured in relation to the cohort's satisfaction. Both affective scores (PA and NA) were utilized to assess whether the cohort's high or low positive affect impacted satisfaction (hypothesis two) and whether the cohort's high or low negative affect impacted satisfaction (hypothesis three). This method of studying affective tone within groups follows past precedence in the study of group affective tone (Ilies et al., 2007; Tanghe et al., 2010).

Hypothesis 2: Positive group affective tone positively correlates to student satisfaction with their cohort experience.

The independent variable was cohort affect (mean cohort positive affect PANAS scores for those cohorts who developed a positive affective tone) and the dependent variable was student satisfaction measured by mean cohort Intrinsic Need Satisfaction Questionnaire: Social Relatedness Scale scores (Kunter et al., 2007). Correlational analysis was run to look for a relationship between the variables.

Hypothesis 3: Negative group affective tone negatively correlates to student satisfaction with their cohort experience.

Hypothesis three was tested using the same process as hypothesis two though with cohorts who developed a negative group affective tone.

Hypothesis 4: Susceptibility to emotional contagion positively correlates to the strength of affective convergence among cohort members.

The independent variable was susceptibility to emotional contagion measured by the mean cohort Emotional Contagion Scale (Doherty, 1997) and the dependent variable was the strength of affective convergence. This dependent variable was operationalized using the

average deviation index (AD). This statistical method for operationalizing strength of affective convergence, established by Tanghe et al. (2010) as a measure of group-level affective convergence, "indicates the extent to which group members are in agreement with other group members regarding their affective states" (p. 346). The study examined both convergence on positive affect and negative affect following established methodology (Tanghe et al., 2010).

Hypothesis 5: Transmission of emotional contagion positively correlates to the strength of affective convergence among cohort members.

The independent variable was transmission of emotional contagion measured by the mean cohort Emotional Expressivity Scale (Kring et al., 1994) and the dependent variable was the strength of affective convergence. The statistical analysis was identical to hypothesis four.

Limitations of Methodology

The nature of the study's design indicates some inherent limitations. For one, the accepted statistical cut-off for indicating group affective tone ($Rwg > .70$) has significant support in the literature (Collins et al., 2013; Du et al., 2011; Sy et al., 2005) though is still an arbitrary indicator of whether the amount of affective congruence is meaningful (LeBreton & Senter, 2008). For example, a cohort may achieve an *Rwg* value of .69 which would not categorize it as achieving affective congruence even though it is a fairly robust indication of interrater agreement. A further statistical limitation is that causation cannot be ascertained utilizing correlational statistics (Vogt, 2007). The correlated associations between group affective tone and the variables of student satisfaction, susceptibility to emotional contagion, and transmission of emotional contagion were

informative regarding the mechanics and consequences of group affective tone, though a direct causation cannot be determined.

Delimitations

This study was delimited through the parameters placed on the population being studied. The population included students within on-ground cohorts with online cohort programs being excluded. There has been research on the occurrence of emotional contagion occurring through electronic communication formats (Belkin, 2009), though the inherent differences in the amount of face to face interaction between on-ground and online cohort programs requires a separate consideration of these cohort education delivery formats. The study also delimited the population by looking at undergraduate college students (associate and bachelor level) due to the predominant use of part time and distance delivery formats for graduate cohort programs.

Ethical Considerations

Maintaining the confidentiality of participant demographic information and survey results was an important consideration in the design and execution of this study (Patten, 2014). Any information obtained from the survey tool was considered confidential and stored on a secure, private computer that was password protected and accessed only by the primary investigator. The results were also stored on the Qualtrics server, which is password protected. The results of the survey data, which were reported at the aggregate cohort level, did not contain any information that would identify either an individual participant or a particular cohort. Information that could lead to the identification of a particular cohort through either campus location or program of study was removed from the write-up of the study to further protect participant confidentiality.

All participants of this study were provided information allowing them to give their informed consent which included the purpose of the study, the nature of what would occur within the study, potential risks and benefits of participating in the study, and allowance to withdraw from the study at any time without repercussion (Patten, 2014, p. 25). The study's informed consent was vetted as part of the Bethel University IRB process.

Chapter 4: Results

The purpose of this quantitative study was to determine if affective convergence occurred within student cohorts leading to the formation of group affective tone. Further, the study explored the relationship between strength of cohort affective convergence and the traits of susceptibility to emotional contagion and emotional expressivity. The study also explored the relationship between group affective tone and student satisfaction.

The study utilized a quantitative cross-sectional survey design. The survey consisted of four established scales aligned with the variables of cohort affect, susceptibility to emotional contagion, emotional expressivity, and satisfaction. The survey also collected demographic and cohort grouping information to allow for aggregation of participant data into cohort groups.

Description of Sample

The study was conducted at a private, non-profit university with multiple campuses located within the Midwest and Southeast regions of the United States. Potential participants within the study included undergraduate students within on-ground educational programs utilizing the cohort model. Surveys were distributed to 56 student cohorts across 20 academic programs from 10 campuses. It was determined that cohorts required a response rate of at least three participants within the cohort to allow for multi-level statistical aggregation (Chi et al., 2013; Sy et al., 2005; Tanghe et al., 2010; Volmer, 2012). One hundred ninety-six completed surveys were returned across 47 cohorts. Of this initial number, 24 cohorts made of up 159 participants ranging in size from three to 18 participants (mean cohort participant size: 6.58) met the minimum participants required for aggregation (Table 1).

Table 1

Descriptive Statistics on Demographics

Variable		Frequency	Percent
Sex	Male	54	34%
	Female	104	65.4%
	Unidentified	1	.6%
Age	18-24	50	31.4%
	25-34	74	46.5%
	35-44	27	17.0%
	45-54	6	3.8%
	55+	1	.6%
	Unidentified	1	.6%
Race	American Indian	1	.6%
	Asian	7	4.4%
	Black	17	10.7%
	Hispanic	2	1.3%
	White	127	79.9%
	Other	4	2.5%
	Unidentified	1	.6

(N = 159)

Study Results

The study examined the variables of positive affective tone, negative affective tone, satisfaction with the cohort experience, susceptibility to emotional contagion, and emotional expressivity. Correlations between variables at the individual student level are presented (Table 2), though are outside the scope of the present study's research questions examining variable relationships at the group level.

Table 2

Correlation Table of Variable Relations at the Individual Level

	1	2	3	4	5
1. Positive Affect	-				
2. Negative Affect	-.16	-			
3. Satisfaction	.45**	-.27**	-		
4. Susceptibility	.28**	-.05	.25**	-	
5. Emotional Expressivity	.22**	-.09	.19*	.40**	-

* Correlation is significant at 0.05 level, ** Correlation is significant at 0.01 level (2-tailed)

Hypothesis one stated that affective convergence occurs within student cohorts forming group affective tone. To test this hypothesis it was necessary to examine whether or not cohort member affect scores converged sufficiently to form a group affective tone. Multilevel modeling principles were utilized to statistically measure whether the lower level individual affect scores could meet the assumptions necessary to aggregate to a higher group level construct. A triangulation approach was utilized to test for the formation of group affective tone by analyzing affective convergence through inter-rater agreement (r_{wg}) and inter-rater reliability (*ICC(1) & ICC(2)*) statistical analyses (Collins et al., 2013; Du et al., 2011; Sy et al., 2005).

An r_{wg} analysis was utilized to assess the level of consensus among cohort member affect through an estimation of the relative interchangeability of cohort member scores (LeBreton & Senter, 2008). The r_{wg} analysis, created by James et al. (1993), has become a common statistical analysis in the assessment of inter-rater agreement in the study of group affective tone (Collins et al., 2013).

Inter-rater reliability, which assesses the consistency in ratings across multiple raters, was tested through *ICC(1)* and *ICC(2). ICC(1)* is a measure of consistency by comparing one rater, randomly selected from the population of raters, to the mean score of all raters (Bliese, 2000;

LeBreton & Senter, 2008). *ICC(2)*, on the other hand, examines whether the mean rating of the group of raters is reliable (Bliese, 2000; LeBreton & Senter, 2008). *ICC(1)* and *ICC(2)* can be calculated through a one-way random effects ANOVA (Bliese, 2000). Together, r_{wg}, *ICC(1)*, and *ICC(2)* have been established as a statistically valid and rigorous means of testing for the formation of group affective tone (Collins et al., 2013).

The results of the multilevel modeling analysis found support for the formation of positive group affective tone but not negative group affective tone. Positive group affective tone (r_{wg} = *.90)* exceeded the recommended level of $r_{wg} > .70$ recommended to justify aggregation (LeBreton & Senter, 2008). A one-way random effects ANOVA was completed to calculate both *ICC(1)* and *ICC(2)* (Table 3). *ICC(1)* = .22 demonstrated a large effect size (LeBreton & Senter, 2008) indicating that 22% of the variability in cohort member affect scores could be explained by cohort membership (Bliese, 2000). This is significant as ICC(1) values greater than .30 are relatively rare in field research (Bliese, 2000). The interpretation of ICC(2) is less well defined. The study's results (*ICC(2)* = *.65*) falls just short of one accepted threshold of .70 (Collins et al., 2013) however it has been noted that decisions to aggregate should be influenced by high r_{wg} values and significant *ICC(1)* scores (Chen & Bliese, 2002). This holistic conceptualization of aggregation to a group level construct has been utilized in multiple studies (Chi & Huang, 2014; Chi et al., 2013; Cole et al., 2008; Collins, Jordan, Lawrence, & Troth, 2016; Ilies et al., 2007; Tanghe et al., 2010) with the current study's ICC(2) score higher than the aforementioned studies. Taken together (r_{wg} = *.90, ICC(1)* = *.22, ICC(2)* = *.65*) the analysis justified the aggregation of the individual participants to the group level and supported the existence of cohorts forming a positive group affective tone.

Table 3

ANOVA Utilized to Analyze ICC(1) and ICC(2)in Positive Affect Scores

ANOVA
Positive Affect

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	31.89	23	1.39	2.87	.00
Within Groups	65.23	135	.48		
Total	97.12	158			

Negative group affective tone was analyzed utilizing the same method as positive group affective tone. The score of $r_{wg} = .89$ met required thresholds for aggregation. The results of the one-way ANOVA, though, were not statistically significant (Table 4) and therefore justification for aggregating negative affect to the group level was not established. In sum, hypothesis one was supported as the existence of positive group affective tone within cohorts was confirmed.

Table 4

ANOVA Utilized to Analyze ICC(1) and ICC(2)in Negative Affect Scores

ANOVA
Negative Affect

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10.15	23	.44	.84	.68
Within Groups	70.95	135	.53		
Total	81.10	158			

The next set of hypotheses examined the relationship between group affective tone and student satisfaction with their program's cohort experience. Hypothesis two stated that positive group affective tone positively correlates to student satisfaction with their academic program's cohort experience while hypothesis three stated that negative group affective tone negatively

correlates to student satisfaction with their academic program's cohort experience. The criterion for negative group affective tone was not met so it was not included in the analysis. The following analysis of positive group affective tone's relationship to satisfaction excluded two of the 24 intact cohorts. This exclusion occurred because the cohorts had members not complete the satisfaction survey which subsequently dropped the number of participants within those cohorts to two members and fell below the minimum threshold of three members. The results of a Pearson correlational analysis demonstrated that positive group affective tone is positively correlated to student satisfaction ($r = .45$, $p = .04$). The results of the correlational analysis support hypothesis two by showing a significant relationship between group affective tone and satisfaction.

Hypotheses four and five examined how the traits of susceptibility to emotional contagion and emotional expressivity (as measured by cohort mean score) influenced the strength of affective convergence among cohort members. Hypothesis four stated that susceptibility to emotional contagion positively correlates to the strength of affective convergence among cohort members and hypothesis five stated that transmission of emotional contagion positively correlates to the strength of affective convergence among cohort members. Affective convergence, the dependent variable within these hypotheses, was operationalized through the use of the average deviation (*AD*) index.

The use of *AD* for operationalizing convergence, established by Tanghe et al. (2010), measures the extent to which group members are in agreement with other group members regarding their affective states through the examination of degree of variance among cohort member affect. An inverse relationship would be expected if the hypotheses were to be confirmed as higher *AD* numbers would indicate a higher level of affective dispersion and, per

the hypotheses, susceptibility to emotional contagion and emotional expressivity should decrease the level of dispersion of affect scores. The average deviation for positive group affective tone allowed for correlational analysis between affective convergence and the variables of susceptibility to emotional contagion and emotional expressivity. Negative group affective tone average deviation was not analyzed as it did not reach statistical significance. Correlational analysis revealed no relationship between AD and cohort size.

On initial analysis, a non-significant relationship was found between level of susceptibility to emotional contagion and average deviation of affect scores ($r = -.08$, $p = .70$) and emotional expressivity and average deviation of affect scores ($r = .07$, $p = .73$) (Table 5).

Table 5

The Relationship between Susceptibility to Emotional Contagion, Emotional Expressivity, and Affective Convergence

	1	2	3
1. AD Positive Tone	-		
2. Susceptibility	-.08	-	
3. Expressivity	.07	.67**	-

* Correlation is significant at 0.05 level, ** Correlation is significant at 0.01 level (2-tailed).

Additional analyses were completed on susceptibility to emotional contagion's relationship to affective convergence as three of the sub-scales (love, fear, and sadness) had limited relevance to the study of affect within the context of university cohort membership. Subsequently, the two sub-scales of happiness and anger were analyzed independently as these emotions were more congruent with descriptions of cohort emotions found within the literature (Lei et al., 2011; Lewis et al., 2010). Correlational analysis utilizing Emotional Contagion Scale sub-scales follows precedent within the emotional contagion literature (Bhullar, 2012). Susceptibility to happy emotions had no statistically significant relationship to emotional

convergence in cohorts ($r = -.032$, $p = .88$). Susceptibility to anger, however, had a significant correlation with emotional convergence within cohorts ($r = -.49$, $p = .02$) (Table 6).

Table 6

The Relationship between Susceptibility to Emotional Contagion (Happy & Anger Sub-Scales), Emotional Expressivity, and Affective Convergence

	1	2	3
1. AD Positive Tone	-		
2. Susceptibility (Happy)	-.03	-	
3. Susceptibility (Anger)	-.49*	-.04	-

* Correlation is significant at 0.05 level, ** Correlation is significant at 0.01 level (2-tailed).

In conclusion, hypothesis one was confirmed as a positive group affective tone was confirmed to occur within university cohorts. Negative group affective tone, however, did not reach the level of statistical significance. Hypothesis two was confirmed as positive group affective tone positively correlated to student satisfaction with their cohort experience. Hypothesis three was not confirmed as negative group affective tone did not form within the cohorts in the study. Hypothesis four was confirmed as susceptibility to the emotion of anger positively correlated to the strength of affective convergence among cohort members. Hypothesis five was not supported as transmission of emotional contagion had no significant relationship to the strength of affective convergence among cohort members. The next section will discuss the implications of these findings.

Chapter 5: Discussion

The purpose of this study was to further explore variability in cohort outcomes. The literature contains multiple reports of student cohorts forming both positive and supportive group cultures and negative and dysfunctional ones (Lewis et al., 2010). Currently there is limited evidence as to why this variability exists. This level of variability in outcomes is occurring while the use of the cohort model continues to grow within higher education (Lei et al., 2011) and recommendations are being made to utilize the student cohort model to improve student satisfaction as a means of increasing retention (Roberts & Styron, 2010). Further, students are giving little thought to the impact the cohort model will have on their educational experience when choosing educational programs (Maher, 2005). Research was needed to fill the gap in the literature to better understand why some students had experiences that were supportive and cohesive (Greenlee & Karanxha, 2010; Harris, 2006) while others endured cohorts that were negative and disruptive (Beachboard et al., 2011; Jaffee, 2007) and at times deleterious to academic performance (Dyson & Hanley, 2002).

A common theme within the body of literature on the student cohort model was cohesiveness and social bonding (Bista & Cox, 2014; Greenlee & Karanxha, 2010; Seed, 2008). This level of cohesion led to the assertion that cohorts primarily produced affective outcomes (Scribner & Donaldson, 2001). The present study examined cohort variability through the lens of cohesion and affect. Cohorts were tested for the development of group affective tone which is a distinctive affective identity caused by convergence of group member affect (George, 1990). Research has suggested that this unique affective identity can either have positive affective attributes (positive group affective tone) or negative affective attributes (negative group affective tone). The study additionally examined if the development of group affective tone impacted

student satisfaction with their cohort experience. Finally, the study utilized the theoretical lens of emotional contagion theory which describes the process of subsuming the emotion of another through a process of emotional synchronization leading to emotional convergence (Hatfield et al., 1994). Specifically, the study examined if either susceptibility to emotional contagion or transmission of emotional contagion (emotional expressivity) was related to increased convergence of cohort member affects.

Conclusions and Implications

The study found that cohorts demonstrated the development of positive group affective tone. Positive affect, as conceptualized by Watson et al. (1988), represents a range of affective states. High levels of positive affect represent emotional states such as enthusiastic, inspired, active, and alert. Low levels of positive affect, described by Watson et al. (1988) as a state of lethargy and sadness, are the same positive affective states experienced at a distinctly lower level. Evidence for the development of a group affective tone suggests that cohorts develop congruent affective identities clustered around the unique emotional characteristics of positive affect. Positive affect as conceptualized by Watson et al. (1988) has 10 distinct emotional characteristics and the formation of positive affective tone suggests that each cohort converges around a distinctive pattern of higher and lower levels of these 10 affective attributes.

Evidence for the development of a positive group affective tone may help explain why cohorts develop distinct affective identities. Student cohorts that are supportive, familial, and collaborative (Bista & Cox, 2014; Greenlee & Karanxha, 2010) may have developed a high positive group affective tone. Likewise, cohorts that have maladaptive attitudes and behaviors such as intentional avoidance of active participation (Jaffee, 2007) may have developed a group affective tone around low levels of positive affect.

The formation of negative group affective tone did not reach the level of statistical significance within the study. One potential reason for this could be the nature of negative affect as operationalized within the Positive Affect Negative Affect Scale (PANAS) (Watson et al., 1988). Negative emotions that appear on the PANAS such as irritable, upset, or anxious could be possible negative emotions experienced as a member of a student cohort though emotions such as guilty, ashamed, scared, and hostile may not be as congruent to the experience of membership in a higher education cohort. Further exploration of negative affect within the context of the student cohort model is likely warranted.

The finding that cohorts develop a positive affective tone has implications on the understanding of cohort dynamics. The literature supported the conclusion that cohorts have unique cultures or identities (Lei et al., 2011; Lewis et al., 2010) though limited research existed as to why this occurs. The evidence that cohorts develop a group affective tone suggests that cohort identities may be the result of unique affective clusters of high or low positive affect. Cohorts that are considered functional and supportive of the academic experience may be related to that cohort's high positive affective tone while cohorts that are negative or maladaptive may have a low positive affective tone. This is significant as past research has shown that group affective tone forms independently of either positive or negative events occurring proximal to the group. Totterdell (2000) and Totterdell et al. (1998) found evidence that emotional convergence within groups was a process in itself and not merely an affective reaction to events perceived as either positive or negative by the group. The independence of group affective tone from positive or adverse events suggests that the unique affective identity of a cohort may be a phenomenon in itself and not a byproduct of the positive or negative experiences that have occurred within the cohort. Group affective tone's independence from external events suggests that interventions

used by faculty or program administrators to positively influence a cohort's culture may need to directly address the cohort's affect instead of creating proximal events in the hopes of influencing a positive shift within the group. Whether or not affective interventions could be designed based on a cohort's unique affective identity remains to be seen. For example, would a cohort with low levels of affect around certain aspects of positive affect (such as low levels of alertness and excitement) respond better to a different approach than cohorts demonstrating a different pattern of low affective tone (such as low levels of pride and enthusiasm)? Cohorts with low alertness and excitement, for example, may receive greater benefit from a focus on classroom engagement strategies such as the use of interactive quiz software or competitions than cohorts who have high levels of alertness and excitement yet lower levels in other areas. A program's influence on a cohort's affective tone is especially relevant as the study found a positive relationship between positive affective tone and student satisfaction.

The study's finding that student satisfaction was positively correlated to positive group affective tone supports the significance of group affective tone on the cohort experience. This is congruent with literature showing links between student satisfaction and social integration as student satisfaction has been found to be related to a student's sense of belonging with their university (Schreiner, 2009). The present study suggests that a positive group affective tone within the student cohort model may be a necessary component for the student cohort model to have a positive impact on student satisfaction. Specifically, this study suggests that group level affective processes may need to be accounted for beyond cohort membership alone in light of recommendations being made for universities to utilize the student cohort model to improve student satisfaction and enhance retention (Bailey & Alphonso, 2005; Roberts & Styron, 2010).

The study additionally found a positive correlation between susceptibility to emotional contagion and affective convergence of cohort members. Specifically, the study found that a cohort's affect converged when there were higher levels of susceptibility to the emotion of anger within the cohort. Susceptibility to the emotions of love, fear, happiness, or sadness had no statistically significant relationship. It is unclear why susceptibility to this particular emotion influenced group convergence while others did not though different possible explanations exist. Anger has been shown to be a powerful emotion in regards to emotional contagion (Lewis, 2000). It is possible that being susceptible to anger is a stronger driver of convergence than less valent emotions. Additionally, Kelly, Iannone, and McCarty (2015) found that anger contagion occurred during both high and low cognitive load conditions whereas happiness contagion only occurred during low cognitive load conditions. The authors of this study concluded from this finding that anger contagion occurred more automatically than happiness contagion due to anger contagion's independence from cognitive load. These findings have interesting implications for the present study as the cohort experience within higher education could be considered one of high cognitive load given the academic nature of the student cohort experience. It is possible that the high cognitive load inherent to higher education attenuates the contagion of more positive emotions while not impacting the contagion of anger.

Susceptibility to the emotion of anger's influence on cohort affective convergence is particularly interesting as susceptibility to anger increased convergence of positive group affective tone. It seems unlikely that susceptibility to anger would create convergence around high levels of positive affect though it could be that susceptibility to anger created a convergence of low positive affect. It may be possible that the impact of subsuming the anger of others may

lead to a collective decrease in positive emotions such as enthusiasm or excitement in regards to the cohort experience.

The implication of this finding is that anger within a cohort could have significantly more influence on the formation of a cohort's affective identity than more positive emotions. Faculty or administrators who attempt to manage an angry cohort by being purposefully positive or happy may not experience success as anger will be subsumed to a greater degree than competing positive emotions. This suggests that the cohort member or members who are the emitter of angry emotions may need to be managed directly so the source of the anger can be addressed to limit its influence on the rest of the cohort.

The lack of correlation between emotional expressivity and affective convergence may be explained in part by the secondary nature of the trait. Whereas susceptibility to emotional contagion directly leads to an affective shift (subsuming the emotions of others), emotionally expressive cohort members still need another member to be susceptible to that emotion in order for emotional convergence to occur. Prior research has shown that susceptibility to emotional contagion and transmission of emotional contagion are both active in the process of emotional contagion. Cheng, Yen, and Chen (2012) found both transmission of emotional contagion and susceptibility to emotional contagion to be necessary components for emotional contagion to occur, though this study was not able to demonstrate this relationship.

Recommendations for Practitioners

Administrators, faculty, and students should be aware of the degree to which individual affects converge to form unique cohort identities. Administrators and faculty who work directly with cohorts of students need to be able to engage a cohort's affect directly instead of relying on external events in the hopes of improving the cohort experience. For example, a faculty member

may have more success speaking explicitly of the negative affective state observed within the cohort and how this collective affect is impacting the learning process as opposed organizing a an activity such as a student mixer in the hopes that this positive event may improve the collective group affect. Specifically, there needs to be awareness in professionals working with cohorts that anger is particularly contagious and influences the convergence of individual cohort members' affects. The source of the angry emotions (which could be from a faculty member as well as a student) may need to be addressed directly before maladaptive emotional contagion can occur.

Students could also be made aware of the affective nature of cohorts at the beginning of the cohort experience. Cohort members are responsible for the affective identities their cohort ultimately forms. A student orientation that includes education around the affective nature of cohorts and how group level emotions influence the student experience may provide students a degree of meta-awareness on how their expressed emotions impact group identity. The goal of such an orientation would not be to encourage emotional inauthenticity but rather to be transparent on the strong affective aspects of the cohort model. Research has shown that affect can be positively influenced by making implicit affective processes explicit (Barsade, Ramarajan, & Westen, 2009). It is possible that educating cohort members on emotional contagion and group affective processes may allow for purposeful and explicit discussions of cohort affect when potentially maladaptive group emotions arise.

Finally, administrators looking to implement the student cohort model within an educational program in order to increase student satisfaction or retention should be aware of the nature of group affective tone within cohorts. This study found a positive relationship between cohorts with a positive group affective tone and satisfaction with the cohort experience. Given

prior research on the relationship between social integration, satisfaction, and retention (Rhodes & Nevill, 2004), it is promising that a cohort with a positive group affective tone may indeed address satisfaction more globally though further research is required to explore this linkage.

Recommendations for Academics

Further research is needed on the evolution and influence of group affective tone within the student cohort model. A longitudinal study design could provide insight into the timeline on the formation of cohort group affective tone. Knowing when group affective tone occurs in the lifespan of a student cohort could provide further insight into the nature of this phenomenon. Further, research exploring whether a cohort's group affect can be influenced by purposeful induction of positive affect would provide administrators and faculty with an understanding on how to better shape cohort affective tone to create a positive learning environment.

Additionally, further research is needed to examine the repercussions of student satisfaction with their cohort experience on factors such as global satisfaction with their academic program or university, retention, and academic performance. Researching these distal effects of cohort satisfaction may provide greater insight into the influence student membership within high or low positive affective tone cohorts may have on cohort members.

Finally, the PANAS (Watson et al., 1988) was shown to be an effective instrument for measuring positive affective tone within cohorts though further consideration regarding scale use may need to occur for the measurement of negative affective tone. The negative affect scale on the PANAS used emotional descriptors that may not have been congruent to the experience of negative affect within cohorts. Future research utilizing a scale that is more sensitive to negative affect within cohorts may provide further understanding of the nature of negative group affective tone within the student cohort model.

Limitations

This study has several limitations. First, while the overall number of participants was quite high, the usable number of cohorts was smaller (N = 24). A greater number of cohorts in the analysis may have increased the sensitivity of the correlational analysis. Further, the study utilized a representative population from a cohort as opposed to the entire population of the cohort. Representative populations have been utilized within research on the formation of group affective tone (Chi, Tsai, & Tseng, 2013; Cole et al., 2008; Mason & Griffen, 2005) though surveying the entire cohort would have been ideal. Finally, the nature of the correlational analysis within the study only found relationships between variables and did not analyze causation. A longitudinal design that examines the influence susceptibility to emotional contagion has on the formation of group affective tone across the lifespan of the cohort and ultimately group affective tone's influence on educational outcomes at the end of an academic program could provide an analysis that begins to examine causation.

Concluding Comments

Cohort outcome variability impacts academic programs, faculty, and students in a wide variety of ways both positive and negative (Beachboard et al., 2011; Lei et al., 2011; Lewis et al., 2010). The results of this study suggest that, in part, cohort identities may be influenced by the group level process of affective convergence. Further, the creation of unique cohort affective identities may be influenced by individual cohort member susceptibility to emotional contagion and may influence student satisfaction with their cohort experience. The results of this study together with future research on ways to influence cohort affective identity may provide educational administrators and faculty with a better understanding on how to positively influence the cohort experience for students.

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Appendix 1

Survey Instrument

Thank you for taking the time to complete this survey. The survey is looking at how academic program cohort members' moods may converge over time. The survey will ask questions related to your mood when you are within your cohort. The survey will also ask general questions regarding how likely you are to express emotions and be impacted by the emotions of others. Finally, the survey will ask some questions related to your general satisfaction as a member of your academic program's cohort. Please read the instructions carefully. Survey results will remain confidential.

The first section of the survey is looking at how you generally feel when you are at school with your cohort of classmates. This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you generally feel this way *at school within your cohort of classmates*. Use the following scale to record your answers.

1 = very slightly or not at all; **2** = a little; **3** = moderately; **4** = quite a bit; **5** = extremely

_____ irritable	_____ interested
_____ alert	_____ distressed
_____ ashamed	_____ excited
_____ inspired	_____ upset
_____ nervous	_____ strong
_____ determined	_____ guilty
_____ attentive	_____ scared
_____ jittery	_____ hostile

_____ active _____ enthusiastic

_____ afraid _____ proud

The next set of questions is looking at how expressive you are with your emotions. This is referring to how expressive you are in general and is not limited to, but can include, your time in the classroom. Use the following scale to record your answers.

1 = Never; **2** = Almost Never; **3** = Rarely; **4** = Often; **5** = Almost Always; **6** = Always

___ I think of myself as emotionally expressive.

___ People think of me as an unemotional person.

___ I keep my feelings to myself.

___ I am often considered indifferent by others.

___ People can read my emotions.

___ I display my emotions to other people.

___ I don't like to let other people see how I'm feeling.

___ l am able to cry in front of other people.

___ Even if I am feeling very emotional, I don't let others see my feelings.

___ Other people aren't easily able to observe what I'm feeling.

___ I am not very emotionally expressive.

___ Even when I'm experiencing strong feelings, I don't express them outwardly.

___ I can't hide the way I'm feeling.

___ Other people believe me to be very emotional.

___ I don't express my emotions to other people.

___ The way I feel is different from how others think I feel.

___ I hold my feelings in.

This next scale measures a variety of feelings and behaviors in various situations. There are no right or wrong answers, so try very hard to be completely honest in your answers. Read each question and indicate the answer which best applies to you. Please answer each question very carefully. Use the following scale to record your answers.

1 = Never true for me; **2** = Rarely true for me; **3** = Often true for me; **4** = Always true for me

___ If someone I'm talking with begins to cry, I get teary-eyed.

___ Being with a happy person picks me up when I'm feeling down.

___ When someone smiles warmly at me, I smile back and feel warm inside.

___ I get filled with sorrow when people talk about the death of their loved ones.

___ I clench my jaws and my shoulders get tight when I see the angry faces on the news.

___ When I look into the eyes of the one I love, my mind is filled with thoughts of romance.

___ It irritates me to be around angry people.

___ Watching the fearful faces of victims on the news makes me try to imagine how they might be feeling.

___ I melt when the one I love holds me close.

___ I tense when overhearing an angry quarrel.

___ Being around happy people fills my mind with happy thoughts.

___ I sense my body responding when the one I love touches me.

___ I notice myself getting tense when I'm around people who are stressed out.

___ I cry at sad movies.

___ Listening to the shrill screams of a terrified child in a dentist's waiting room makes me feel nervous.

The next set of questions asks about your general satisfaction as a member of your academic program's cohort. Use the following scale to complete the items below.

1 = Strongly Disagree; **2** = Disagree; **3** = Agree; **4** = Strongly Agree

When I am in school with my cohort of classmates…

___ I feel good about being with my classmates

___ I experience a sense of belonging

___ I feel accepted by my classmates

___ I feel understood by my classmates

Thank you for completing the above items. The last set of items is demographic information. This information is critical as survey results will be grouped by cohort to analyze cohort dynamics. Again, all surveys will remain confidential.

Cohort Grouping Questions

Program of Study (*example: Bachelor of Science in Nursing)*: _____

Date You Started the Program (Month/Year): _____

School/Campus Location (*specify city where campus is located*): _____

Current Semester of the Program (example: 1st, 2nd, 3rd, etc.) _____

Age: ___18-25 ___26-30 ___31-35 ___36-40 ___41-45 ___ 46-50 ___50+

Gender: ___Male ___Female

Race/Ethnicity: ___American Indian or Alaska Native ___Asian

___Black or African American ___Hispanic/Latino

___Native Hawaiian/Other Pacific Islander ___White ___Other

Appendix 2

BETHEL UNIVERSITY

Michael Jensen <mij27249@bethel.edu>

Emotional Contagion Scale

2 messages

Michael Jensen <mij27249@bethel.edu> Mon, Jan 11, 2016 at 3:08 PM
To: ElaineHatfield582@gmail.com

Hello Dr. Hatfield,

I am a doctoral student working on my dissertation which is looking at emotional contagion within the university student cohort model. Your website has the newer version of the Emotional Contagion Scale (Doherty, 1997) available for download. May I have permission to use the scale within my research? I was not sure if the available download implicated use so I thought it best to check.

Thanks (and really enjoyed your book Emotional Contagion!),

Michael Jensen

Elaine Hatfield <elainehatfield582@gmail.com> Mon, Jan 11, 2016 at 3:14 PM
To: Michael Jensen <mij27249@bethel.edu>

You do indeed have permission to use the scale. That is the latest version.
[Quoted text hidden]
--
Dr. Elaine Hatfield
3334 Anoai Place
Honolulu, HI 96822-1418
ElaineHatfield582@gmail.com
www.elainehatfield.com
www.elainehatfield.com/novels.htm

"Nature loves variety. Unfortunately Society hates it."

PsycTESTS

Positive and Negative Affect Schedule
Version Attached: Full Test

PsycTESTS Citation:
Watson, D., Clark, L. A., & Tellegen, A. (1988). Positive and Negative Affect Schedule [Database record]. Retrieved from PsycTESTS. doi: http://dx.doi.org/10.1037/t03592-000

Instrument Type:
Interview Schedule/Guide

Test Format:
The 10-item Positive Affect (PA) and Negative Affect (NA) scales comprise the 20-item PANAS. Participants are asked to indicate to what extent they felt each of the 20 terms based on various time instructions on a 5-point scale (1 = very slightly or not at all, 2 = a little, 3 = moderately, 4 = quite a bit, 5 = extremely). Based on the preference of the researcher, participants are asked to what extent they felt a certain way either: (a) "right now (that is, at the present moment)" (moment instructions); (b) "today" (today); (c) "during the past few days" (past few days); (d) "during the past week" (week); (e) "during the past few weeks" (past few weeks); (f) "during the past year" (year); or (g) "in general, that is, on the average" (general).

Source:
Watson, David, Clark, Lee A., & Tellegen, Auke (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. Journal of Personality and Social Psychology, Vol 54(6), 1063-1070. doi: 10.1037/0022-3514.54.6.1063

PsycTESTS

Emotional Expressivity Scale
Version Attached: Full Test

PsycTESTS Citation:
Kring, A. M., Smith, D. A., & Neale, J. M. (1994). Emotional Expressivity Scale [Database record]. Retrieved from PsycTESTS. doi: http://dx.doi.org/10.1037/t01073-000

Instrument Type:
Rating Scale

Test Format:
6-point Likert scale (1 = never true and 6 = always true).

Source:
Kring, Ann M., Smith, David A., & Neale, John M. (1994). Individual differences in dispositional expressiveness: Development and validation of the Emotional Expressivity Scale. Journal of Personality and Social Psychology, Vol 66(5), 934-949. doi: 10.1037/0022-3514.66.5.934

PsycTESTS

Intrinsic Need Satisfaction Questionnaire
Version Attached: Full Test

Note: Test name created by PsycTESTS

PsycTESTS Citation:
Kunter, M., Baumert, J., & Köller, O. (2007). Intrinsic Need Satisfaction Questionnaire [Database record]. Retrieved from PsycTESTS. doi: http://dx.doi.org/10.1037/t15780-000

Instrument Type:
Inventory/Questionnaire

Test Format:
All items are rated on a 4-point Likert scale ranging from 1 = "strongly disagree" to 4 = "strongly agree".

Source:
Kunter, Mareike, Baumert, Jürgen, & Köller, Olaf. (2007). Effective classroom management and the development of subject-related interest. Learning and Instruction, Vol 17(5), 494-509. doi: 10.1016/j.learninstruc.2007.09.002, © 2007 by Elsevier. Reproduced by Permission of Elsevier.