

# ***SCHOOL CLIMATE***

## ***Sense of Classroom and School Communities in Online and On-Campus Higher Education Courses***

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Multivariate statistical analyses were used to determine if there were differences in sense of community and perceived learning between university students enrolled in fully online and fully face-to-face on-campus courses ( $N = 279$ ). Study results provide evidence that online students feel a weaker sense of connectedness and belonging in both classroom and school-wide communities than on-campus students who attend face-to-face classes. Moreover, results provide evidence that nontraditional students tend to form stronger social bonds and feel more connected with each other in a university setting than do the younger, more traditional students. However, no differences in perceived learning were found between online and on-campus groups.

### ***INTRODUCTION***

The professional literature provides substantial evidence to suggest that there are no significant differences in learning and other relevant educational outcomes based on the instructional delivery medium. In particular, Russell (1999) reviewed 355 studies to determine if educational outcomes differ between coursework presented at a distance and face-to-face. He concluded that the course delivery medium does not make a difference, which he portrayed as the no significant difference phenomenon, a conclusion that many proponents of distance education frequently cite to endorse

the worth of online course delivery. Moreover, the professional literature suggests that learning is not caused by the technology, but by the instructional method embedded in the media (Clark, 1994).

While many facets of distance education have been thoroughly investigated, other facets have not, and two issues repeatedly surface, notwithstanding Russell's (1999) no significant difference phenomenon. The first issue is the lingering concern among some educators and researchers regarding the quality of learning in distance education courses. Abrami and Bures (1996), for example, assert:

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In particular, social and intellectual isolation are two course-related factors that may contribute to weaknesses in DE. Distance learners appear to experience fewer and less-essential opportunities to interact with teachers and other students to discuss course content, assignments, learning strategies, and personal concerns about learning. DE students are physically separated from the social learning environment, and this may have effects on their perceptions of psychological isolation and detachment, which in turn, affect learning. (p. 39)

Tabb (2003), writing for the *National Center of Educational Statistics*, also raises the issue of quality when he reports that 26% of U.S. postsecondary schools feel that concerns about course quality are keeping them from either starting or expanding their distance education course offerings. Unfortunately, research regarding the quality of online learning is still significantly limited (Arbaugh, 2002) and many negative perceptions about the quality of distance learning may be based on instances of poor online course design and pedagogy.

The second issue of concern is the lower student persistence rates in many distance education programs vis-à-vis on-campus programs. As used here, persistence refers to a college student's academic continuation behavior that leads to successful program completion. Frankola (2001) reports dropout rates of between 20-50% in distance learning courses while Carr and Ledwith (2000) found dropouts exceed 40% in some institutions. Carr (2000) also reports dropout rates tend to be higher for distance learning courses than for equivalent on-campus courses. She notes that during the Fall 1998 semester, the withdrawal rate was 9% from the University of Central Florida's online courses and 5% from face-to-face courses in the same subjects. Carr also outlines evidence from qualitative studies that suggests one reason for these higher distance education dropout rates is the lack of connection that some students feel with the school, other students, and their professors.

The presence of issues such as quality of learning and student persistence suggests the existence of factors that negatively influence some students in courses delivered at a distance. The present study examines student-institution fit as a possible factor that can help explain the lower perceptions of learning quality and lower persistence rates in some online programs.

### ***Student-Institution Fit***

Popular student persistence models explain persistence through student-institution fit by looking at student, institutional, and environmental variables and specific themes, such as the social integration of students into university life. Perhaps the most influential attempt to explain the process of persistence in on-campus higher education was developed by Tinto (1987, 1993). He theorizes that the primary determinants of successful persistence are related to individual student characteristics and factors that are related to student experiences prior to college and at college. He elaborates his views as follows:

individual departure from institutions can be viewed as arising out of a longitudinal process of interactions between an individual with given attributes, skills, financial resources, prior educational experiences, and dispositions (intentions and commitments) and other members of the academic and social systems of the institution.... Positive experiences...that is, integrative ones...reinforce persistence through their impact upon heightened intentions and commitments both to the goal of college completion and to the institution in which the person finds him/herself.... Negative or malintegrative experiences serve to weaken intentions and commitments, especially commitment to the institution, and thereby enhance the likelihood of leaving. (Tinto, 1993, p. 113)

Experiences before college and student characteristics are input variables that cannot be affected greatly by schools. Moreover, student composition at universities is changing.

Universities are facing a future in which their student bodies will reflect the increasing size and diversity of the population in general as well as a greater percentage of nontraditional students (Cortes, 1991) and students enrolled in distance education programs.

Bean and Metzner (1985) identify age, especially being over 24, as one of the most common variables in studies of nontraditional student attrition. Students over 24 years old represent a population of adult learners who often have family and work responsibilities that can interfere with successful attainment of educational goals. Other characteristics typically used to characterize nontraditional students are part-time student status and full-time employment.

Villella and Hu (1991) report that persistence for nontraditional undergraduate students in on-campus programs is approximately 68%, 9 percentage points lower than for all undergraduate students. Frank and Gaye (1997) suggest that nontraditional students who drop out of school are often actually *stopping out*—that is, interrupting their studies but planning to return, while Hoffman and Elias (1999) suggest such students might drop out in order to attend other institutions. Such actions are suggestive of a poor student-institution fit. Moreover, Perez and Foshay (2002) report that distance education programs typically consist of larger percentages of nontraditional students, which could help explain the lower persistence rates in such programs. Student transfers are easier in distance education programs, since transferring from one school to another entails no physical move.

Student experiences subsequent to admission, which Tinto refers to as integration variables, are affected by school policies and practices and consequently can be influenced by the school. Tinto (1987) suggests that “the more central one’s membership is to the mainstream of institutional life the more likely, other things being equal, is one to persist” (p. 123). He also argues that insufficient interactions with peers and faculty and differences with the prevailing value patterns of other stu-

dents are likely to result in dropouts. In other words, students who feel they do not fit in and have low sense of community tend to feel isolated and are at-risk of withdrawing. This view is consistent with that of Moore and Kearsley (1996) who identify the levels of student-student and student-professor interactions and school support as possible factors that contribute to noncompletion of distance education courses.

Tinto (1993) maintains that students require academic, social, and personal support from the school. This support, whatever its form, needs to be readily available and connected to other parts of the students’ total school experience. Tinto’s model validates the need for schools to assume a proactive role in a student’s integration process and underscores the importance of attending to the promotion of a positive school climate.

### ***School Climate***

Tagiuri (1968) describes school climate as the total environmental quality within the school, while Hoy and Miskel (1987) view school climate as “the set of internal characteristics that distinguishes one school from another and influences the behavior of people” (p. 225). School climate consists of those aspects of the school environment that are consciously perceived by members of the school community, particularly sense of community. Some educators find it useful to think of school climate as the school’s personality. However, school climate is subject to change based on changing school policies and interpersonal experiences of students with their peers, instructors, and school administrators. The professional literature suggests that a positive school climate improves student outcomes such as student cognitive and affective outcomes to include student values and personal growth and satisfaction (e.g., Anderson, 1982).

When enrolled in distance education programs, student participation in institutional life is often limited and may consist of infrequent or no on-campus residencies with little face-to-

face contact with other students, professors, and administrators, thus limiting the involvement of distance students in institutional life and the benefits derived from a positive school climate. According to Astin's (1984) theory of involvement, such limitations can lead to decreased satisfaction with the entire college experience as well as decreased student persistence. In particular, Astin found negative outcomes associated with forms of involvement that "either isolate the student from peers or remove the student physically from the campus" (p. 126). Isolation of the student from peers or removal of the student physically from the campus, which often occur in online programs, can have negative consequences on school climate.

### *Sense of Community*

If one views school climate as the school's personality, then sense of community can be viewed as one way to portray that personality. Glynn (1981) identifies homogeneity, interdependence, shared responsibility, and common goals and values as essential elements of sense of community. McMillan and Chavis (1986) define sense of community as "a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together" (p. 9). They identify membership, influence, integration and fulfillment of needs, and shared emotional connection as the most important characteristics of sense of community.

In 1996, McMillan refined his views based on research that had been reported since he and Chavis (1986) published their seminal work a decade earlier. He moved to a more mutual/personal model of community—one that emphasizes the "spark of friendship that becomes the Spirit of Sense of Community" (p. 315). Royal and Rossi (1997) describe such a community as a learning environment where teamwork is prevalent, diversity is incorporated, and individuals care about, trust, and

respect each other. Community members share a vision for the future of the school, a common sense of purpose, and a common set of values.

In a review of the community literature, Hill (1996) concludes that there is disagreement about the specific dimensions that make up psychological sense of community and suggests this disagreement is because "some significant percentage of these aspects of psychological sense of community differ from setting to setting" (p. 433). One setting, which is the focus of the present study, is the school, to include the virtual educational settings one encounters in online programs.

Rovai, Wighting, and Lucking (2004) theorize that sense of community in an educational setting includes two underlying dimensions, which one can label social community and learning community. Social community, derived primarily from the work of McMillan and Chavis (1986) and McMillan (1996), represents the feelings of the community of students regarding their spirit, cohesion, trust, safety, interactivity, interdependence, and sense of belonging. Learning community, on the other hand, consists of the feelings of community members regarding the degree to which they share group norms and values and the extent to which their educational goals and expectations are satisfied by group membership. Learning community, therefore, is closely related to the work of Glynn (1981) and Royal and Rossi (1997), who argue that common goals and values are essential elements of community.

A strong sense of community largely reflects a socializing experience based on a holistic approach to education that values individuality, not one that focuses on mass delivery of skill-based instruction. It is possible for students to experience a strong sense of community in online learning environments although interactions are mediated by technology. Such an experience can be created by pedagogies that are consistent with Vygotsky's (1978) learning framework, which suggests social interaction plays a fundamental role in the development of cognition. He goes beyond

the focus on the individual in understanding the world by putting forth the idea that participation in social interaction is important for individual learning. Consequently, use of social constructivism, to include teaching in contexts that might be personally meaningful to students, negotiating shared meanings with students, class discussion, and small-group collaboration, can help nurture a sense of community and increase student-institution fit. Accordingly, Larochelle and Bednarz (1998) write that the facilitating role of the teacher now includes the rethinking of how students might make knowledge visible to themselves and to other learning community members. The focus is on interaction with the goal of facilitating a type of cohesion that results in stronger satisfaction and commitment to the school.

### ***Purpose***

Few studies have investigated links between school-level and classroom-level variables. The present study draws from the student-institution fit model to obtain greater insight into the reportedly lower perceptions of learning quality and persistence rates in some distance education programs. In particular, school climate, as operationalized by sense of community among students in both classroom and school settings, and perceived learning are examined. The expectation is that classroom community and perceived learning will be similar for both on-campus and online groups, provided professors use a pedagogy based on social constructivism that fosters community-building. However, school community is hypothesized to be lower in online programs where the present emphasis is on classroom communities with little regard to forming strong school communities for online students (e.g., Palloff & Pratt, 1999).

One potential confounding variable in the present study is the type of student, traditional or nontraditional. The literature suggests nontraditional students are more likely to drop out of school than traditional students (e.g., Vil-

lella & Hu, 1991). Since the literature also suggests distance education programs are more likely to consist of a greater percentage of nontraditional students (e.g., Wood, 1995), there is a need to determine whether differences in type of student fully explain the greater attrition rate in courses taught at a distance. Accordingly, the present study also compares undergraduate students, who are more likely to meet the definition of being traditional, and graduate students, who are more likely to meet the criteria of being nontraditional. Consequently, the present study responds to the following research question: Are there mean differences in school climate, as measured by classroom community and school community, and student perceptions of learning associated with differences in course delivery method (i.e., on-campus and online) and student status (i.e., undergraduate and graduate)?

## ***METHODOLOGY***

### ***Participants***

The study consists of 279 university students enrolled in undergraduate and graduate education programs. The volunteer rate for this study was 83.30%. The sample consisted of 250 (89.6%) females and 29 (10.4%) males. A total of 195 (69.9%) participants were Caucasian, 55 (19.7%) were African American, 6 (2.2%) were Asian/Pacific Islander, 4 (1.4%) were Hispanic, and 19 (6.8%) classified themselves as other; 104 (37.3%) were undergraduates and 175 (62.7%) were graduate students. All undergraduate students were preparing for careers in education and all graduate students were employed in the field of education as either a teacher or administrator, with the majority working in the K-12 school environment.

### ***Setting***

The present study used a convenience sample of undergraduate and graduate education courses offered by two universities in an urban area of the state of Virginia. Students earned

three semester hours credit for each course, which was delivered either face-to-face in an on-campus classroom or fully online using the Blackboard.com<sup>SM</sup> e-learning system. This e-learning system consists of an integrated set of productivity, communication, assessment, and content management tools that allow instructors to design, present, facilitate, and administer online instruction. Data were collected from participants during the final 3 weeks of the semester prior to the final course examinations. An online survey system was used to collect data from online students, and paper copies of the surveys were completed by on campus participants in their respective classrooms.

### ***Instrumentation***

The Classroom and School Community Inventory (CSCI; Rovai, Wighting, & Lucking, 2004) was used to measure classroom community and school community. This instrument consists of 10 self-report items for the classroom scale, such as "I trust others in this course," and 10 items for the school scale, such as "I feel that this school satisfies my educational goals." Following each item is a 5-point Likert scale of potential responses: *strongly agree*, *agree*, *neutral*, *disagree*, and *strongly disagree*. Study participants check the place on the Likert scale that best reflects their feelings about the item. Scores are computed by adding points assigned to each of the items. Items are reverse-scored where appropriate to ensure the least favorable choice was always assigned a value of 0 and the most favorable choice is assigned a value of 4. The total possible scores range from 0 to 40 for each of the classroom community and school community scales, with higher scores reflecting stronger sense of community. The total possible scores for each of the two subscales of social community and learning community can range from 0 to 20 for each scale.

Rovai, Wighting, and Lucking (2004) provide evidence of both CSCI validity and reliability. A factor analysis offers empirical support for the notion that students have multi-

ple psychological senses of community in reference to classroom and school-wide communities and the presence of two subscales of social community and learning community as latent dimensions of both the classroom community and school community constructs. Internal consistency estimates of reliabilities for the classroom scale and school scale using Cronbach's coefficient alpha were .84 and .83 respectively. Additionally, internal consistency coefficients for the social community and learning community subscales of the classroom form were .90 and .87 respectively, and for the school form the coefficients were .85 and .82 respectively. Stability estimates for each scale using Pearson *r* correlation coefficients and a 2-week interval between pretest and posttest measurements was .91.

Student perception of learning was measured by self-reports of their learning. The perceived learning instrument has been used in many studies related to learning (McCroskey, Sallinen, Fayer, Richmond, & Barraclough, 1996). Participants were asked to respond to the following item: "On a scale of 0 to 9, how much did you learn in this course, with 0 meaning you learned nothing and 9 meaning you learned more than in any other course you've had?" McCroskey et al. (1996) report that test-retest reliability over a 5-day period was .85 in a study of 162 adult learners.

### ***Design and Analysis***

The present study used a causal-comparative design to investigate differences in classroom community, school community, and perceived learning between groups of on-campus and online university students and between undergraduate and graduate students. Multivariate analyses of variance (MANOVAs) were used to analyze the data. Only education students were used as participants in order to help control the selection threat to internal validity arising from the use of a nonequivalent groups design. Additionally, only experienced faculty who have a reputation for valuing student collaborative group work and

student-student and student-instructor interactions were sampled in order to help control the implementation threat.

However, several limitations remain. The sample consists of university students enrolled in education programs sampled from two universities in the same urban area of Virginia. Results may not generalize to students in other programs or taught by other professors or attending other universities with different school climates. Follow-on research is needed to confirm the stability of results in additional samples. The self-report nature of the CSCI and the perceived learning instrument is another limitation. Self-reports are reactive measures, and there is a threat of bias based on possible dishonest responses.

## RESULTS

Means with standard deviations in parentheses for pooled data ( $N = 279$ ) are as follows: classroom community, 30.08 (5.05); classroom social community, 15.10 (3.15); classroom learning community, 14.98 (3.45); school community, 27.32 (5.13); school social community, 11.41 (3.76); school learning community, 15.91 (2.57); and perceived learning, 6.57 (1.67). Table 1 displays the descriptive statistics for each variable disaggregated by course delivery method (i.e., on-campus and online) and student status (undergraduate and graduate). Table 2 reveals the descriptive statistics for each variable disaggregated by gender and ethnicity (African American and Caucasian).

TABLE 1  
Descriptive Statistics Disaggregated by Course Delivery Method and Student Status

Variable	Traditional		Online		Undergraduate		Graduate	
	M	SD	M	SD	M	SD	M	SD
Classroom community	30.41	5.19	29.70	4.87	28.24	4.82	31.18	4.87
Social community	16.11	2.80	13.93	3.14	14.19	3.32	15.65	2.93
Learning community	14.30	3.87	15.77	2.70	14.05	3.93	15.53	3.01
School community	27.89	5.39	26.66	4.75	25.58	5.18	28.38	4.83
Social community	12.35	3.84	10.31	3.36	10.71	4.16	11.82	3.45
Learning community	15.54	2.70	16.35	2.34	14.87	2.22	16.54	2.56
Perceived learning	6.66	1.82	6.47	1.47	6.00	1.77	6.91	1.50

Note:  $N = 279$ ; traditional,  $n = 150$ ; online,  $n = 129$ ; undergraduate,  $n = 104$ ; graduate,  $n = 175$ .

Classroom community and school community scores can each range from 0 to 40; social community and learning community scores can each range from 0 to 20. Higher community scores reflect stronger sense of community. Perceived learning scores can range from 0 to 9. Higher scores reflect higher perceptions of learning.

TABLE 2  
Descriptive Statistics Disaggregated by Gender and Ethnicity

Variable	Female		Male		African American		Caucasian	
	M	SD	M	SD	M	SD	M	SD
Classroom community	30.34	5.03	27.83	4.67	31.36	5.06	29.87	4.96
Social community	15.30	3.15	13.45	2.71	15.27	2.95	15.09	3.17
Learning community	15.05	3.53	14.38	2.72	16.09	2.95	14.78	3.49
School community	27.43	5.25	26.34	3.99	27.75	5.03	27.06	5.01
Social community	11.56	3.86	10.10	2.44	11.45	3.40	11.29	3.80
Learning community	15.88	2.58	16.24	2.46	16.29	2.90	15.77	2.44
Perceived learning	6.64	1.71	5.97	1.02	7.13	1.56	6.44	1.68

Note: Female,  $n = 250$ ; male,  $n = 29$ ; African American,  $n = 55$ ; Caucasian,  $n = 195$ . Summary statistics are not provided for Asian/Pacific Islander,  $n = 6$ , Hispanic,  $n = 4$ , and Other,  $n = 19$ , because of low sample sizes.

TABLE 3  
Intercorrelations Between Variables

Variable	1	2	3	4	5	6	7
1. Classroom community	—	.75	.80	.55	.37	.56	.58
2. Classroom social community		—	.20	.56	.52	.35	.19
3. Classroom learning community			—	.30	ns	.51	.67
4. School community				—	.88	.72	.16
5. School social community					—	.31	ns
6. School learning community						—	.30
7. Perceived learning							—

Note:  $p < .05$ . ns = not significant.

Participants reported their age as follows: 18 to 20 years ( $n = 56$ ), 21 to 30 years ( $n = 109$ ), 31 to 40 years ( $n = 58$ ), 41 to 50 ( $n = 43$ ), over 50 ( $n = 13$ ). Table 3 shows the bivariate correlations for the six community measures and perceived learning. A two-way contingency table analysis was conducted to determine if graduate students were older than undergraduate students. This analysis revealed that graduate students were indeed older than undergraduate students, Pearson  $\chi^2(4, N = 279) = 24.15, p < .001$ . The ratios of graduate students to undergraduate students for the five age categories, younger to older, identified above were .75, 1.32, 2.63, 5.14, and 5.5 respectively.

A two-way MANOVA was conducted using delivery method (on-campus and online) and student status (undergraduate and graduate) as the independent variables and total classroom community, total school community, and perceived learning as the dependent variables. There were no univariate or multivariate within-cell outliers at  $\alpha = .001$ . Evaluation of assumptions of normality, linearity, and multicollinearity were satisfactory. Using Wilks'  $\Lambda$  as the criterion, there were no significant differences in the linear combination of the three dependent variables across the two course delivery methods,  $\Lambda = .99, F(3, 273) = 1.20, p = .31, \text{partial } \eta^2 = .013$ . However, there were significant differences between undergraduate and graduate students,  $\Lambda = .88, F(3, 273) = 12.28, p < .001, \text{partial } \eta^2 = .12$ . Effect size was medium. Moreover, the delivery

method  $\times$  student status interaction effect was significant,  $\Lambda = .89, F(3, 273) = 11.24, p < .001, \text{partial } \eta^2 = .11$ . Effect size was also medium.

Main effect post hoc tests revealed that graduate students scored higher than undergraduates on classroom community,  $F(1, 275) = 22.42, p < .001, \text{partial } \eta^2 = .08$ , school community,  $F(1, 275) = 19.86, p < .001, \text{partial } \eta^2 = .07$ , and perceived learning,  $F(1, 275) = 19.62, p < .001, \text{partial } \eta^2 = .07$ . All effect sizes were medium. Interaction effect post hoc tests revealed that there were significant interactions for classroom community,  $F(1, 275) = 7.18, p = .008, \text{partial } \eta^2 = .03$ , and perceived learning,  $F(1, 275) = 33.55, p < .001, \text{partial } \eta^2 = .11$ . In particular, although graduate students scored higher than undergraduates on classroom community in both on-campus ( $M = 32.03, SD = 4.52$  vis-à-vis  $M = 27.62, SD = 5.12$ ) and online courses, the gap decreased significantly in online courses ( $M = 30.16, SD = 5.10$  vis-à-vis  $M = 28.94, SD = 4.41$ ). Moreover, although graduate students ( $M = 7.37, SD = 1.30$ ) perceived they learned more in on-campus courses than did undergraduates ( $M = 5.44, SD = 1.95$ ), graduate students ( $M = 6.38, SD = 1.56$ ) perceived they learned less than undergraduates ( $M = 6.63, SD = 1.30$ ) in online courses. Effect sizes were small for classroom community and medium for perceived learning.

A one-way MANOVA was also conducted to determine the effect of delivery method and student status on the four community sub-

scales: classroom social community, classroom learning community, school social community, and school learning community. Evaluation of assumptions was satisfactory. The MANOVA revealed that the combined dependent variables were significantly affected by delivery method,  $\Lambda = .76$ ,  $F(4, 272) = 26.95$ ,  $p < .001$ , partial  $\eta^2 = .28$ , and student status,  $\Lambda = .88$ ,  $F(4, 272) = 8.93$ ,  $p < .001$ , partial  $\eta^2 = .12$ . Additionally, the delivery method  $\times$  student status interaction effect was significant,  $\Lambda = .88$ ,  $F(4, 272) = 9.02$ ,  $p < .001$ , partial  $\eta^2 = .12$ . These results reflect a strong association between delivery method and the combined dependent variables and a medium effect size for the student status main effect and the interaction effect.

Delivery method main effect post hoc tests revealed that on-campus students scored higher than online students on classroom social community,  $F(1, 275) = 40.68$ ,  $p < .001$ , partial  $\eta^2 = .13$ , and school social community,  $F(1, 275) = 20.50$ ,  $p < .001$ , partial  $\eta^2 = .07$ . However, online students scored higher than on-campus students on classroom learning community,  $F(1, 275) = 26.31$ ,  $p < .001$ , partial  $\eta^2 = .09$ , and school learning community,  $F(1, 275) = 9.92$ ,  $p = .002$ , partial  $\eta^2 = .04$ . All effect sizes were medium except for school learning community, which was small.

Student status main effect post hoc tests revealed that graduate students scored higher than undergraduates on classroom social community,  $F(1, 275) = 16.52$ ,  $p < .001$ , partial  $\eta^2 = .06$ , classroom learning community,  $F(1, 275) = 12.11$ ,  $p = .001$ , partial  $\eta^2 = .04$ , school social community,  $F(1, 275) = 5.81$ ,  $p = .02$ , partial  $\eta^2 = .02$ , and school learning community,  $F(1, 275) = 30.68$ ,  $p < .001$ , partial  $\eta^2 = .10$ . All effect sizes were small except for school learning community, which was medium.

Finally, delivery method  $\times$  student status interaction effect post hoc tests revealed that the only significant measure involved in the interaction was classroom learning community,  $F(1, 275) = 27.85$ ,  $p < .001$ , partial  $\eta^2 = .09$ . In an on-campus learning environment,

graduate students ( $n = 95$ ,  $M = 15.56$ ,  $SD = 3.28$ ) scored higher on this measure than did undergraduate students ( $n = 55$ ,  $M = 12.13$ ,  $SD = 3.86$ ). However, in an online environment, undergraduate students ( $n = 49$ ,  $M = 16.20$ ,  $SD = 2.72$ ) scored higher than graduate students ( $n = 80$ ,  $M = 15.50$ ,  $SD = 2.67$ ).

## DISCUSSION

There are concerns among some educators and researchers regarding the quality of learning in distance education courses (e.g., Abrami & Bures, 1996; Noble, 2002; Tabs, 2003) and the relatively low student persistence rates in many distance education programs (e.g., Carr, 2000; Carr & Ledwith, 2000; Frankola, 2001). The literature suggests social integration of students into university life and a strong sense of community are important factors that are often used to explain both high persistence and learning satisfaction (e.g., Dede, 1996; Tinto, 1993; Wellman, 1999). Accordingly, the primary aim of the present study was to determine if differences exist in sense of community and perceived learning between university students enrolled in fully online and on-campus degree-granting programs. It was hypothesized that if the models regarding student-institution fit and student attrition in an on-campus program are also applicable to distance education programs, sense of community will be lower in the online population of students.

The present study provides evidence that online students score lower on both classroom social community and school social community than their on-campus peers. These results suggest that online students feel a weaker sense of connectedness and belonging than on-campus students who attend face-to-face classes, suggesting online students are more likely to drop out of their online programs than are on-campus students, in accordance with theories related to student-institution fit (e.g., Tinto, 1987, 1993).

However, the present study revealed no difference in perceived learning between the

online and on-campus groups, which is consistent with the no significant difference phenomenon reported by Russell (1999). This result suggests that online and face-to-face classroom students appear to be equally satisfied with their learning when courses and pedagogy make use of social constructivism, as was the case in the present study. According to student-institution fit theory, the congruence between student goals and school mission is mediated by academic and social components (Tinto, 1993). Thus, increased integration into school social communities should result in greater institutional commitment and student persistence, given that perceived learning is held constant between online and on-campus students. Additional research is needed to confirm this hypothesis.

Also of note is the finding that graduate students scored higher than undergraduate students on both classroom social community and school social community. If one assumes that graduate students are best characterized as being nontraditional (e.g., older, employed, etc.), then these results provide evidence that nontraditional students tend to form stronger social bonds and feel more connected with each other in a university setting than do more traditional students. Students with these characteristics are more likely to persist to graduation in their educational programs. This finding suggests that the lower persistence rates of distance education students cannot be explained by the higher proportion of nontraditional students in such programs.

Interestingly, online students scored higher than on-campus students in both classroom learning community and school learning community. One plausible explanation for this outcome is that online students are more homogeneous than on-campus students. Research indicates that nontraditional students have needs that differ from those of more traditional on-campus students, particularly regarding the belief that education is an investment (e.g., Richter-Antion, 1986). Consequently, online students may indeed be more alike regarding their educational goals, expecta-

tions, and values than are on-campus students, which would explain the results of the present study.

Study results are consistent with the research of Workman and Stenard (1996), who report that distance education students generally consider themselves as outsiders and not members of the school community. They also note that one should not assume that these students are content with this status and report research that suggests such students have an interest in having stronger ties with the school community, which could lead to higher persistence rates and learning satisfaction.

Administrators and faculty can respond in many different ways to increase online students' positive feelings of connectedness with the school and on-campus students by incorporating programs directed towards involvement. For example, school administrators or faculty can take the following actions either singly or in combination. These actions have the potential for strengthening student-institution fit and sense of community among online students.

1. Re-design fully online programs as blended programs. According to Colis and Moonen (2001), blended learning is a hybrid of on-campus face-to-face and online learning so that instruction occurs both in the classroom and online, and where the online component becomes a natural extension of on-campus classroom learning. Dziuban and Moskal (2001) report that such blended courses, when compared to on-campus courses, have equivalent or reduced student withdrawal rates as well as equivalent or superior student success rates. Rovai and Jordan (2004) report stronger sense of community in blended courses than either fully online or on-campus university courses.
2. Design and conduct online courses based on a culturally responsive form of social constructivism. Such an approach to learning can lead to a meaningful engagement of participants and strong sense of community. Additionally, online profes-

- sors should be fair, appropriately concerned for the well-being of their students, know and effectively convey to students the academic content, and challenge them with an attitude of *we lift as we climb* (Roebuck & Murty, 1993).
3. Form cohorts. Cohorts are groups of students who enroll at the same time and go through a program by taking the same courses at the same time. Research on cohorts (e.g., Norris & Barnett, 1994) suggests that successful cohorts balance the needs of the group with those of the individual members by fostering a sense of belonging, creating an environment in which mutual respect flourishes, and providing an opportunity for critical reflection and the development of shared understanding.
  4. Include opportunities for preparation, remedial, and refresher coursework. Many students enter higher education under-prepared for university-level work, particularly in reading, writing, and/or mathematics. Additionally, students need to develop skills regarding the use of the e-learning system used by the school and the productivity software they are required to use.
  5. Attend to the importance of student-student and student-professor interactions. Wagner (1997) writes, “distance learning practitioners—particularly instructors and program administrators—seem to view interactivity as the defining attribute of contemporary distance learning experience” (p. 19). The establishment of peer relations, the development of mentors, and early communication of professor and teaching assistant availability in the course syllabus and e-learning system gateway page are important factors in student academic and social integration. Use of faculty and student biographical pages in the e-learning system will facilitate the establishment of social ties. Also, researchers report that students learn most from teachers who are “warm, friendly, immediate, approachable, affiliative, and fostering of close, professionally appropriate personal relationships” (Andersen & Andersen, 1987, p. 57).
  6. Attend to the importance of student-staff interactions. The perception of online students that the administrative staff provides for their personal and social needs appears to positively influence persistence (e.g., Pascarella & Terenzini, 1983). In the case of online students, positive contacts with academic and financial advisers, technology support personnel, and student affairs professionals are particularly important. Communicate contact information in the course syllabus and e-learning system gateway page. Provide toll-free telephone numbers and live support during extended hours and on weekends. Also provide a link in the e-learning system to a Web site that lists frequently asked questions and responses.
  7. Encourage online students to volunteer for and participate in school leadership and governance activities. For example, if cohorts are used in a distance education program, have students elect a cohort president, vice-president, and so forth. Virtual meetings can be conducted at a distance using chat rooms based on agendas that are developed by the students with recommendations made to school administrators. The university can also include online students in focus groups that meet online.
  8. Integrate online students in school student affairs programs. Woodward, Love, and Komives (2000) acknowledge that distance education is a topic not being addressed by student affairs. Student affairs professionals should service distance students as they do on-campus students. Moreover, they need to find ways to integrate these services into the e-learning system itself. Such actions are consistent with the call for the creation of seamless learning environments for student affairs (Blimling & Whitt, 1999).

9. Promote extension of school sagas to encompass online students and distribute associated artifacts. Sagas are the shared history and institutional glue that bind a school together under a common identity (B. Clark, 1970). According to Clark, sagas are initiated under three conditions: (a) when an organization is being created, (b) when an organization is in crisis, and (c) when an organization is ready for evolutionary growth. He also noted that the most distinctive U.S. colleges systematically teach their students to treasure their unique institutional histories and continuing sagas. Associated artifacts can include student identification cards similar to those issued to on-campus students, university stickers and decals, university discount cards and credit cards, and so forth.

## CONCLUSION

Satisfaction with distance education and persistence to program completion is a highly complex process in which a range of personal, social, and institutional factors can produce diverse results. However, what is clear from the literature is that students' strong feelings of social community with other students, faculty, and staff throughout the school setting can produce positive outcomes. The challenge for school administrators, faculty, and student affairs professionals is to go beyond delivering Web-based instruction and to integrate online students into the day-to-day life of the school. Moreover, there is a need for these individuals to recognize that socialization is as important as instruction in online learning environments.

The appeal for impersonal solutions and the substitution of technology for human capital may be attractive to some educators who focus on financial efficiencies that can be achieved through standardization of course design and reliance on self-paced movement through canned learning resources that are reminiscent of programmed instruction. Moreover, the promotional materials for online programs reveal

that some institutions publicize convenience as the centerpiece of their online programs, to include the use of the "no campus residency" claim as a marketing tool to attract students. This promotional theme raises a significant criticism about distance education—some schools appear to emphasize convenience over quality. Such an approach to distance education is based on outdated mechanistic assumptions regarding education that, according to Heshusius (1991), "narrowly conceive" and "trivialize life" (p. 38). This approach robs the online student of the intellectual stimulation that comes from real discourse and discovery and is likely to adversely affect school climate among distance students, resulting in an impersonal approach to learning, a weak sense of community and, ultimately, student attrition.

## REFERENCES

- Abrami, P. C., & Bures, W. M. (1996). Computer-supported collaborative learning and distance education. *American Journal of Distance Education, 10*(2), 37-42.
- Andersen, J. F., & Andersen, P. A. (1987). Never smile until Christmas? Casting doubt on an old myth. *Journal of Thought, 22*(4), 57-61.
- Anderson, C. S. (1982). The search for school climate: A review of the research. *Review of Educational Research, 52*(3), 368-420.
- Arbaugh, J. B. (2002). Managing the on-line classroom: A study of technological and behavioral characteristics of Web-based MBA courses. *Journal of High Technology Management Research, 13*(2), 203-223.
- Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Development, 40*(5), 518-529.
- Bean, J., & Metzner, B. (1985). A conceptual model of nontraditional undergraduate student attrition. *Review of Educational Research, 55*(4), 485-540.
- Blimling, G., & Whitt, E. (1999). *Good practice in student affairs: Principles to foster student learning*. San Francisco: Jossey-Bass.
- Carr, S. (2000). As distance education comes of age, the challenge is keeping the students. *The*

- Chronicle of Higher Education*, 46(23), A39-A41.
- Carr, R., & Ledwith, F. (2000). Helping disadvantaged students. *Teaching at a Distance*, 18, 77-85.
- Clark, B. (1970) *The distinctive college: Antioch, Reed & Swarthmore*. Chicago: Aldine.
- Clark, R. (1994). Media will never influence learning. *Educational Technology Research and Development*, 42(2), 21-29.
- Collis, B., & Moonen, J. (2001). *Flexible learning in a digital world: Experiences and expectations*. London: Kogan-Page.
- Cortes, C. (1991). Pluribus & unum: The quest for community and diversity. *Change*, 23, 8-13.
- Dede, C. (1996). The evolution of distance education: Emerging technologies and distributed learning. *American Journal of Distance Education*, 10(2), 4-36.
- Dziuban, C., & Moskal, P. (2001). Evaluating distributed learning in metropolitan universities. *Metropolitan Universities*, 12(1), 41-49.
- Frank, F., & Gaye, H. (1997). When life gets in the way. *Adults Learning*, 8(9), 244-245.
- Frankola, K. (2001). The e-learning taboo: High dropout rates in online courses. *Syllabus*, 14(11), 14-16.
- Glynn, T. (1981). Psychological sense of community: Measurement and application. *Human Relations*, 34(7), 789-818.
- Heshusius, L. (1991). On paradigms, metaphors, and holism. *Holistic Education Review*, 4(4), 38-43.
- Hill, J. L. (1996). Psychological sense of community: Suggestions for future research. *Journal of Community Psychology*, 24(4), 431-438.
- Hoffman, H. F., & Elias, J. L. (1999). Technical nontraditional student college attrition: The student's perspective. In K. P. King & T. R. Ferro (Eds.), *Proceedings of the Pennsylvania Adult and Continuing Education Research Conference* (pp. 73-78). Hershey, PA: Pennsylvania Adult and Continuing Education Association. (ERIC Document Reproduction Service No. ED427262)
- Hoy, W. K., & Miskel, C. G. (2001). *Educational administration: Theory, research, and practice* (6th ed.). New York: McGraw Hill.
- Larochelle, M., & Bednarz, N. (1998). Constructivism and education: Beyond epistemological correctness. In M. Larochelle, N. Bednarz, & J. Garrison (Eds.). *Constructivism and education* (pp. 3-20). Cambridge, UK: Cambridge University Press.
- McCroskey, J. C., Sallinen, A., Fayer, J. M., Richmond, V. P., & Barraclough, R. A. (1996). Non-verbal immediacy and cognitive learning: A cross-cultural investigation. *Communication Education*, 45(3), 200-211.
- McMillan, D. W. (1996). Sense of community. *Journal of Community Psychology*, 24(4), 315-325.
- McMillan, D. W., & Chavis, D. M. (1986). Sense of community: A definition and theory. *Journal of Community Psychology*, 14(1), 6-23.
- Moore, M. G., & Kearsley, G. (1996). *Distance education: A systems view*. New York: Wadsworth.
- Noble, D. F. (2002). *Digital diploma mills*. New York: Monthly Review Press.
- Norris, C. J., & Barnett, B. (1994). Cultivating a new leadership paradigm: From cohorts to communities. Paper presented at the annual meeting of the University Council of Educational Administration, Philadelphia, PA, October 1994. (ERIC Document Reproduction Service No. ED387877)
- Palloff, R. M., & Pratt, K. (1999) *Building learning communities in cyberspace: Effective strategies for the online classroom*. San Francisco: Jossey-Bass.
- Pascarella, E. T., & Terenzini, P. T. (1983). Predicting voluntary freshman year persistence/withdrawal behavior in a residential university: A path analytic validation of Tinto's model. *Journal of Educational Psychology*, 75(2), 215-226.
- Perez, S., & Foshay, R. (2002). Adding up the distance: Can developmental studies work in a distance learning environment? *T H E Journal*, 29(8), 16, 20-22, 24.
- Richter-Antion, D. (1986). Qualitative differences between adult and younger students. *NASPA Journal*, 23, 58-62.
- Roebuck, J. B., & Murty, K. S. (1993). *Historically Black colleges and universities: Their place in American higher education*. Westport, CT: Praeger.
- Rovai, A. P., & Jordan, H. M. (2004). Blended learning and sense of community: A comparative analysis with traditional and fully online graduate courses. *International Review of Research in Open and Distance Learning*, 5(2). Available online at: <http://www.irrod.org/content/v5.2/rovai-jordan.html>
- Rovai, A. P., Wighting, M. J., & Lucking, R. (2004). The classroom and school community

- inventory: Development, refinement, and validation of a self-report measure for educational research. *Internet and Higher Education*, 7(4), 263-280.
- Royal, M. A., & Rossi, R. J. (1997). *Schools as communities*. Eugene, OR: ERIC Clearinghouse on Educational Management. (ERIC Document Reproduction Service No. ED405641)
- Russell, T. L. (1999). *The no significant difference phenomenon*. Raleigh: North Carolina State University.
- Tabb, E. D. (2003). *Distance education at degree-granting postsecondary institutions: 2000-2001* (NCES Report 2003-017). Washington, DC: National Center for Educational Statistics.
- Tagiuri, R. (1968). The concept of organizational climate. In R. Tagiuri & G. H. Linstead (Eds.), *Organizational climate: Explanation of a concept* (pp. 11-32). Cambridge, MA: Harvard University Press.
- Tinto, V. (1987). *Leaving college*. Chicago: University of Chicago Press.
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition*. Chicago: University of Chicago Press.
- Vygotsky, L. S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.
- Villella, E. F., & Hu, M. (1991). A factor analysis of variables affecting the retention decision of non-traditional college students. *NASPA Journal*, 28(4), 334-341.
- Wagner, E. D. (1997). Interactivity: From agents to outcomes. *New Directions for Teaching and Learning*, 71, 19-26.
- Wellman, B. (1999). The network community: An introduction to networks in the global village. In Wellman, B. (Ed.), *Networks in the global village* (pp. 1-48). Boulder, CO: Westview.
- Wood, H. (1995, May). Designing study materials for distance students. *Occasional papers in Open and Distance Learning*, 17, 25-32.
- Woodward, D. B., Love, P., & Komives, S. R. (2000). *Leadership and management issues for a new century*. *New Directions for Student Services*, No. 92. San Francisco: Jossey-Bass.
- Workman, J., & Stenard, R. (1996). Student services for distance learners. *DEOSNEWS—The Distance Education Online Symposium*, 6(3). Retrieved September 30, 2004, from [http://www.ed.psu.edu/acsde/deos/deosnews/deosnews6\\_3.asp](http://www.ed.psu.edu/acsde/deos/deosnews/deosnews6_3.asp)

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