The Canadian Journal of Higher Education
La revue canadienne d'enseignement supérieur
Volume XXXII, No. 2, 2002 pages 27–46

Testing the Effect of a Cohort Grouping Model as a Form of Instructional Grouping in Teacher Education*

LILY DYSON & BETTY HANLEY
University of Victoria

ABSTRACT

The study examined the effect of cohort grouping as a form of delivering teacher education programs on student social adjustment and academic performance. A sample of 94 students entering a Canadian Faculty of Education was divided into two groups: the cohort (n = 46) and the non-cohort group (n = 48). The former shared five courses and learned together from the same instructors for the academic year, and the latter took courses individually. The results showed that while there were no group differences on the measures of social support, self-efficacy, and university adjustment, the non-cohort group made greater gains than the cohort group in the academic performance as measured by the grade point average (GPA) over the academic year.

RÉSUMÉ

L'étude a examiné les effets sur l'adaptation sociale estudiantine et sur la performance académique du groupement des cohortes comme forme d'administration des programmes pour la formation des professeurs. Un échantillon de 94 étudiants débutant dans une faculté

* This study was supported by a grant awarded by the Faculty Research and Travel of the University of Victoria, Victoria, British Columbia, Canada. We sincerely thank pre-service teachers for their kind participation.

d'éducation au Canada a été divisé en 2 groupes : celui des cohortes ($n = 46$) et celui des non-cohortes ($n = 48$). Les premiers ont partagé cinq cours et ont appris ensemble des mêmes intervenants pendant un an tandis que les autres ont suivi individuellement des cours. Bien que les mesures de soutien social, d'auto-efficacité et de l'adaptation universitaire ne démontrent pas les différences entre les groupes, la note moyenne du groupe non-cohorte a dépassé celle du groupe cohorte sur une période d'une année académique. Les résultats sont discutés en tenant compte des implications pour la recherche additionnelle.

The search for more effective forms of delivering instruction in higher education is particularly pertinent in view of the current public demand for educational reform and accountability (Lewington & Orpwood, 1993). The instructional emphasis has moved toward a learner-centered and cooperative model of delivery of education (American Psychological Association, 1994; Hettich, 1993; Kubota, 1991). This emphasis has coincided with the trend toward building a community of learners in which learners are purposefully grouped to create a learning environment supporting collaborative approaches and cross-course connections (Angelo, 1997). A cohort group model is one instructional delivery format that could help meet these objectives.

In higher education, a cohort group refers to the grouping of students who share a set of common courses or learning activities for an extended period of time (Barnett & Muse, 1993). The primary purpose of a cohort group is to create a supportive learning environment (Barnett & Muse, 1993). Cohort groups especially meet adult learners' learning style and needs for affiliation, mutual learning, and control over educational decision-making (Barnett & Muse, 1993). Thus, the cohort model appears to be especially appropriate for professional schools. It is no wonder that the cohort group model has been increasingly utilized in professional schools in such disciplines as business, medicine, and education (Barnett & Muse, 1993). Indeed, the cohort model has emerged as a fashionable delivery structure for preparing educational leaders (Basom, Norris, & Barnett, 1995).

Cohort groups would seem to be particularly appropriate for teacher education programs. The absence of a cohort experience in teacher education means that "prospective teachers have little opportunity to share their perceptions of teaching... and to observe one another in the classroom" (Weinstein, 1988, p. 33). Although the cohort group model has reportedly been successfully employed in faculties of education in the training of educational administrators (Barnett & Muse, 1993; Teitel, 1997), its application to other areas of education remains limited.

The scant literature suggests that cohort groups generate a number of positive effects. A major benefit is the social support and connection making engendered in the model. Greater emotional support and social affiliation have been identified as resulting from such group experiences (Barnett & Muse, 1993; Howey & Zimpher, 1989; Kent State University, 1989; Teitel, 1997). The organizational structure of a cohort group also permits students to engage in decision-making and to take some ownership of the operation of the program (Barnett & Muse, 1993). A cohort group thus may cultivate self-efficacy, which refers to an individual's belief in his/her own capacity to perform successfully on a task (Bandura, 1982). Indeed, a study at the University of Massachusetts at Boston (UMB) found increased power among the students in educational leadership programs as a result of cohort grouping (Teitel, 1997). For example, the cohort students felt empowered to negotiate with faculty on the syllabus and to have their needs addressed and, hence, the class activities adjusted. Self-efficacy also rose in individual members. As one student stated: "We develop our own sense of authority and leadership and responsibility" (p. 76).

Researchers have related effective interaction with peers to high academic achievement in higher education (Pascarella, 1985). With the possibly strong presence of social support and self-efficacy, a cohort group would also benefit students' general adjustment to university life and academic learning. This possibility is indirectly supported by studies linking social support to personal adjustment, perceived academic success, and grade point average (GPA) in graduate students (Hodgson & Simoni, 1995). Further support is provided by a study that found higher degrees of self-efficacy to be associated with higher levels of academic

performance in undergraduate students (Wood, & Locke, 1987) and adjustment to university life in students with learning disabilities (Saracoglu, Minden, & Wilchesky, 1989). Indeed, benefits for the students in cohort experiences have included improved academic performance (Barnett & Muse, 1993). Thus, research leads to the hypothesis that cohort grouping could result in greater degrees of personal adjustment to student life, increased social support, self-efficacy, and higher academic achievement.

Negative effects of cohort groups, however, have also been reported. One such effect is that the cohort group may be disrupted by a few individual members and that there may be the undesirable development of group versus world mentality (Etheridge, 1986). The UMB experience also found negative effects of cohort grouping in which individual alienation and formation of cliques developed (Teitel, 1997). Furthermore, distracting social interaction may negate the performance gains of cohesive groups (Reynold & Hebert, 1998). Thus, when negative effects result from cohort grouping, it would follow that members of the group would have less desirable development in the areas of personal adjustment, social support, and academic success.

Although the potentially positive and negative effects of cohort grouping have been suggested, the effect of such an instructional grouping model on the students' social adjustment and academic performance has not been adequately tested. The few studies that exist have relied on anecdotal reports (Yerkes, Basom, Norris, & Barnett, 1995). In, perhaps, the first empirical study of the effect of cohort grouping, Reynold and Hebert (1998) compared cohort and non-cohort groups in graduate programs for business administration, public administration, and educational administration. They confirmed that cohort groups exceeded the non-cohort groups in the affective learning domain but not significantly in the cognitive learning domain. This result, however, was based only on a single observation, and no data were provided for comparing performance prior to and after the grouping. The methodology, therefore, did not allow for valid testing of the effect of experience associated with cohort groups. A more stringent test of the cohort group model would span the time period in which students in both groups would have the

time to experience the grouping arrangements. Such a test would involve a repeated measure of the performance or behavior at the beginning and the end of cohort experience. No such study, however, is presently available in the research literature on cohort grouping.

A further weakness of current research on cohort grouping is the failure to distinguish different types of cohort grouping. At least three types of cohort grouping have been practiced: (1) closed or pure cohorts, where students take all of their course work together in a pre-arranged sequence, (2) open or mixed cohorts, in which students enroll in a core set of classes together and take additional course work to meet their own course requirements, and (3) fluid or course-by-course cohorts, in which students may join the cohort at different times (Yerkes et al., 1995). A survey of 37 institutions that prepare school leaders in the U.S. found that the most commonly used groupings were of the first two types: the closed and the open models (Yerkes et al., 1995). Although likely the most commonly used, the closed model might not allow leeway should students encounter interpersonal difficulty in their cohort. This indeed was a finding of a cohort graduate program in educational leadership (Teitel, 1997). In this study, students reported having the feeling of "being stuck" (p. 71) and being "boxed into defined roles within the group" (p. 72). An open model, in contrast, allows for individual time should the cohort grouping turn problematic for group members. An open model of cohort grouping would appear to be a more practical form for the delivery of higher education. This model, however, has not been explicitly tested.

A review of literature suggests that, despite the popularity of cohort grouping in higher education, the model is yet to be more stringently tested. The literature review also indicates the need to examine the effect of the open cohort model due to the latter's potential as a more practical and flexible model. Further research is thus important, especially in view of the potential benefits and disadvantages of cohort grouping for the delivery of higher education and the need to specify a cohort model that is effective and practical for the delivery of higher education. The results of such research would assist decision-making about the instructional application of cohort grouping in higher education, especially in teacher education, where the model would seem to be appropriate.

This study examined an open cohort group model in which students were grouped together for a set of core subjects. The study evaluated the effect of this model on new students in a teacher education program. Based on a two-time repeated measure, the study examined the effect of the model on social and academic adjustment, specifically in the areas of (1) social support, (2) self-efficacy, (3) general adaptation to college life, and (4) academic performance. It was hypothesized that the cohort group would produce a greater degree of social support and self-efficacy than the non-cohort group. Further, the academic performance and general adaptation to college life would also be higher in the cohort group than in the non-cohort group.

METHOD

Participants

The participants were 94 students entering the elementary school program of a Faculty of Education in a Canadian university. They were divided into two groups: the cohort group consisting of 46, and the non-cohort group, of 48 students. Their ages ranged from 20 to 40. There were 24 males and 70 females in the total group, 16 males in the cohort and 8 males in the non-cohort group. All participants, cohort or non-cohort, were in the 1st year of the teacher education program. They were admitted into the program after at least two years of course work in other disciplines. During the first two years in the education program, the participants were required to complete basic courses in teacher education. The university, with a full-time student registration of 14,000 students, is located in a medium-size metropolitan city of about 360,000 people.

The participants in the cohort group were enrolled in a set of five required courses as a group and shared the courses for one year (two semesters). In essence, the students took the five courses together and were taught by the same instructors as a cohort group. The courses were Art Education, Drama Education, Music Education, Physical Education, and the Psychology of Childhood. Five instructors taught the set of courses. The instructors for both groups, however, worked independently in delivering the courses, with no regular formal discussion or

collaboration beyond the interaction normally engaged in as colleagues and three yearly meetings as a group to share course outlines, content, and general progress in their classes. The non-cohort group of students selected their own courses and may or may not have shared courses with each other for the one-year period.

The cohort participants were recruited from students entering the 1st year of a program leading to a Bachelor of Education (B.Ed.) degree and teaching certification in the Faculty of Education under study. After their acceptance in the Faculty and prior to the beginning of the term, eligible students (those who were planning to take the same five required courses) were sent a letter describing the nature of the study and were invited to take part in the study as cohort members. Those agreeing to take part were asked to return a signed consent form.

The non-cohort (control) group members were recruited at the beginning of the term from the non-cohort sections of the teacher education program. The same procedure used for the recruitment of the cohort group was applied for the recruitment of the non-cohort group. The recruitment and, hence, the study was completed in two years, each year with a sample of new students and using the same procedures, to reach the final sample size.

Procedure

The participants were interviewed and administered assessment scales at two times during the year: the beginning of their first year (Time 1) and, again, at the end of their first year (Time 2) in the Faculty. Likewise, their GPAs were collected at the beginning of their entrance to the Faculty of Education and, again, at the completion of their first year in the Faculty. In between the two time periods no special treatments were provided to any group except that the students in the cohort group shared a set of five courses taught by five instructors in the manner of instructional delivery described earlier.

Instruments

The following assessment scales were administered to both groups of participants.

Perceived Social Support — Friends (PSS-Fr) (Procidano & Heller, 1983): The Perceived Social Support Scale (PSS) (Procidano & Heller, 1983) measures the extent to which an individual perceives that his/her needs for support, information, and feedback are fulfilled by friends (PSS-Fr) and by family (PSS-Fa). In a series of three validation studies, PSS-Fr and PSS-Fa were verified to be related but separate and valid constructs. In the present study, the PSS-Fr was employed. The 20-item scale comprises declarative statements to which an individual answers "Yes," "No," or "Don't know." The higher the score, the greater the perceived social support. An example of the items is: "My friends give me the moral support I need." Based on college undergraduate students, PSS-Fr has high internal consistency, with a Cronbach alpha of .88 (Procidano & Heller, 1983).

The Self-Efficacy Scale (Sherer et al., 1982): This scale measures a person's beliefs and expectations for his/her ability to perform tasks and to deal with others successfully. These beliefs and expectations are referred to as self-efficacy by Bandura (1986). Subjects rate agreement with each item on 14-point Likert scales, ranging from "strongly disagree" to "strongly agree." The scale has two subscales: the General Self-Efficacy subscale and the Social Self-Efficacy subscale. Both scales have adequate reliability with university students (Cronbach alpha coefficients of 0.86 and 0.71, respectively). In the present study, the rating was revised to a 5-point Likert scale. An example of the scale items is: "When I make plans, I am certain to make them work."

The SACQ (Student Adaptation to College Questionnaire) (Baker & Siryk, 1989): the SACQ is a 67-item, self-report questionnaire designed to assess student adjustment to college life. In each item, a student responds to a 9-point scale ranging from "applies very closely to me" to "doesn't apply to me at all." The SACQ is divided into 4 subscales: Academic Adjustment (SACQ-ACAD), Social Adjustment (SACQ-SOC), Personal-Emotional Adjustment (SACQ-PER), and the Goal Commitment/Instructional Attachment (SACQ-ATT). The scale results in the full-scale score and the subscale scores. An example of the items is: "I have been keeping up to date on my academic work."

Internal coefficients for the full-scale score based on a total of seven studies ranged from 0.85 to 0.91 (Baker & Bohdan, 1989).

To measure academic performance, the participants' GPAs were obtained from their record with their informed consent. The GPA ranged from 1 to 9, the latter having a grade value of "A+." Additionally, an open-ended interview was carried out to assess other aspects of students' experience in the program. Results of portions of the interview data are reported elsewhere (Mather & Hanley, 1999). For the present analysis, one interview question was included in the post-hoc analysis to provide additional information about the social context of the classroom. The participants were asked: "How would you describe your relationship with your peers in the classes?" The answers were recorded verbatim.

RESULTS

The quantitative data were analyzed using the SPSS 8.0 version (SPSS Inc., 1997). Because the study took place over a two-year period, the analysis first examined if data from different years (Year 1 and Year 2) differed in any of the variables studied. For this purpose, a series of correlated t-tests was conducted to test the differences between the first year and the secnd year based on the combination of both groups (cohort and non-cohort) for each year. No differences were found between the Year 1 and Year 2 data on any of the variables: the Self-Efficacy Scale, PSSS-Fr, and the SACQ full-scale scale and subscales. Additionally, there were no differences in the GPA between Year 1 and Year 2 groups. The merging of the two years of data for analysis to increase the statistical power was therefore justified.

Personal Social Support—Friends and Self-Efficacy

Descriptive statistics for personal social support — friends and self-efficacy for the cohort and non-cohort groups are presented in Table 1. ANOVA with repeated measure found no interaction effect nor group effect. There was, however, a time effect in which both groups reported having more social support at Time 1 (the beginning of the academic term) than at Time 2 (the end of the academic term) ($F(1, 92) = 9.84, p > .01$).

Table 1
Means (*M*) and Standard Deviation (*SD*) for Personal Social Support and Self-Efficacy, by Group by Time Period

	Group							
	Cohort ($n = 46$)				Non-cohort ($n = 48$)			
	Time 1[a]		Time 2[b]		Time 1		Time 2	
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Personal Social Support	16.91	4.8	17.65	4.2	16.50	2.6	17.4	2.3
Self-Efficacy	90.7	10.7	94.6	9.5	88.5	9.0	90.4	8.3

[a] denotes the beginning of the academic term.
[b] denotes the end of the academic term.

With self-efficacy, ANOVA with repeated measure was applied. No interaction or group effect was found. There was, however, a time effect (F (1, 92) = 13.23, $p > .0001$); both groups reported stronger degrees of self-efficacy over time.

Academic Performance

Table 2 presents the GPA by group at Time 1 and Time 2. ANOVA with repeated measure repeated with time was subsequently performed with the GPA. The results showed a significant interaction effect of group by time (F (1, 92) = 19.50, $p > .001$). There was also a time effect (F (1, 92) = 44.49, $p > .0001$). While there was an increase in GPA in both groups from Time 1 to Time 2, the non-cohort group's gain significantly exceeded the cohort group's at Time 2.

Adaptation to College Life

Table 3 presents descriptive statistics for the cohort and the non-cohort groups on the full-scale and subscales of the SACQ. ANOVA with repeated measure with the SACQ total score found no interaction, group,

Table 2
Means (*M*) and Standard Deviation (*SD*) for the GPA by Group by Time Period

Group							
Cohort ($n = 46$)				Non-cohort ($n = 48$)			
Time 1		Time 2		Time 1		Time 2	
M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
5.28	.91	5.48	.71	5.4	1.1	6.42	.54

or time effect. MANOVA with repeated measure was also applied to the four subscales of the SACQ: SACQ-ACAD, SACQ-SOC, SACQ-PER, and SACQ-ATT. No significant interaction or time effect was found. There was, however, a group effect on the subscale of SACQ-SOC (F (1, 92) = 4.20, $p < .05$) in which the cohort group exceeded the non-cohort group for both periods. There was also a time effect (F (1, 92) = 8,23, $p > .0005$) on the SACQ-PER subscale, both groups scoring lower at Time 2 than at Time 1.

Post-Hoc Qualitative Analysis: Peer Relationships in the Classroom

To increase the understanding of the effect of the cohort grouping, analysis was conducted to describe the social context underlining the different grouping arrangements for instruction. Because the literature suggests that the superiority of cohort grouping over other forms of grouping rests in its capacity to create social support and collegiality (Barnett & Muse, 1993), the qualitative analysis was centered on the peer social relationships as actually experienced by the participants within the classroom. The participants' descriptions of their peer relationships in the classroom were analyzed using the constant comparative method for major themes (Strauss & Corbin, 1990). Each unique response was categorized, and same and similar categories were subsequently conglomerated. This produced, in the final analysis, a greater number of responses

Table 3
Means (M) and Standard Deviation (SD) for Student Adaptation to College Questionnaire (SACQ) by Group and Time Period

	Group							
	Cohort ($n = 46$)				Non-cohort ($n = 48$)			
	Time 1		Time 2		Time 1		Time 2	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Full-scale Adaptation	481.0	54.4	473.1	53.0	461.5	66.4	465.3	66.9
Academic Adjustment	168.7	20.7	166.0	21.9	166.3	21.9	168.3	24.2
Social Adjustment	141.5	25.6	143.8	22.0	131.3	22.0	136.2	21.6
Personal-Emotional Adjustment	103.9	17.3	96.0	18.3	97.6	19.9	95.1	21.6
Attachment	117.0	10.6	117.8	11.3	113.8	17.6	115.5	18.8

than the actual number of participants, since a response from a single individual might contain several themes and hence be categorized into several categories. Reliabilities were checked on the consistency in the coding of themes generated, by comparing the type and number of coded themes for the question by two coders who were unaware of the group memberships of the participants. The coders discussed disagreements when they happened and scored them as disagreements when differences could not be resolved. The reliability was then calculated by dividing the number of agreements by the sum of the number of agreements and disagreements, the product being finally divided by 100. The reliability was examined based on the responses of all participants in the cohort group on the first year pre-test. The obtained reliability was 92%.

Table 4 shows the major themes for the cohort and the non-cohort group in response to the question, "How would you describe your relationship with you peers in the classes?" As seen, common themes for the cohort and the non-cohort groups appeared. The intensity, however,

Table 4
Themes and Frequency by Group of Participants' Responses to: How Would You Describe Your Relationship With Your Peers in the Classes?

	Group			
	Cohort		Non-cohort	
Theme	Pre-test	Post-test	Pre-test	Post-test
1 Positive & open	18	22	23	22
2. Intimate & close	29	28	36	40
3. Enjoyable & friendly	30	27	19	36
4. Enthusiastic & Interesting	7	5	7	21
5. Cooperative	19	17	17	14
6. Isolated	13	15	21	11
7. Negative/Stressful	12	15	12	7
Total	128	129	135	151

varied with groups on some themes while remaining similar for both groups on others. Moreover, differences emerged from the pre-test to the post-test for both groups. In general, there was a positive relationship among the peers for both groups at both time periods. Such relationships were expressed in an open, friendly, cohesive, and cooperative manner. Negative relationships, however, also occurred, but to a lesser extent. Negative relationships were characterized by isolation and by stressful relationships. Notably, there was an apparent increase over time in several positive domains of relationships for the non-cohort group: Friendly and Enjoyable, and Enthusiastic and Interesting. For this group, there was also a decrease in the sense of isolation and negative/stressful experiences. These experiences were not reported in the cohort group, who showed, instead, a slight decrease in positive peer relationships and a mild increase in negative experiences such as isolation and stressfulness.

The general nature and changes from the pre-test to the post-test in the relationships within each group were shown in the students' remarks. Friendship experienced at the pre-test by cohort students was typified by these students' comments:

- *[the peer relationship was] good, I get along with everybody. There are groups. If it weren't for the cohort, some people wouldn't have anyone to hang out with.*
- *I've found a niche of about four people with whom I am good friends... Those in the niche stay together, help each other with homework, and do social things like going to the movies.*

Cooler friendships were reported by students in the non-cohort group at the pre-test:

- *The [peer] relationship is fine, with those I know. I've enjoyed getting to know them better.*
- *I don't know a lot of people yet. I'm on a smile basis.*
- *So far, I've met a couple of people who seem to be in most of my classes. At this point, we're just building relationships.*
- *I don't recognize a lot of faces.*

During the post-test, however, negative relationships began to appear for the cohort group. Cohort students commented on their peer relationships in the classes:

- *I've noticed a change. Some of the people I hung around with at the beginning of the year bug me now and vice versa.*
- *The peer relationship in the class is not really good. Negativity in the class made it harder for me to get to class.*
- *The cohort is not as close as it used to be. We've diverted.*

In contrast, more positive peer relationships appeared in the non-cohort group at the post-test. At that time, a non-cohort student commented on peer relationships in the class: "Good, excellent. I get along with everyone and have developed close relationships with a few people." Another non-cohort student responded: "Good, I became really good friends with one person. Group presentations have allowed me to meet people and become closer to them... I felt less intimated." There

was a decline in the positive peer relationships but an increase in the negative social atmosphere for the cohort group from the beginning of the academic year to the end. The opposite experience was reported by the non-cohort group.

DISCUSSION

This study examined the effect of cohort grouping as a possible model for instructional delivery in higher education in the teacher preparation program. A cohort group model with students sharing five courses was compared with a non-cohort group model in which students did not attend classes as a group. The effect was investigated in terms of social support, self-efficacy, academic performance, and adaptation to college life for students entering an elementary teacher education program in a Faculty of Education. Comparison of the two groups, cohort and non-cohort, was made at the beginning of the academic year when the students entered the program and at the end of the same academic year. The students thus had an opportunity to experience their respective groupings over time.

The results demonstrated that, while both cohort and non-cohort groups showed an increased sense of self-efficacy and personal social support from friends over the year, group membership did not make differences over time in self-efficacy, personal social support related to friendships, or general adjustment to college life. A greater surprise was the finding about the difference between groups in academic performance as measured by GPA, the non-cohort group gaining more than the cohort group over the academic year with a gain of more than 1 SD (standard deviation). Corroborating the quantitative results, qualitative data showed that despite the similarly positive peer relationships in the two groups, a deteriorating peer relationship was emerging in the cohort group over the course of the year.

The present results thus fail to support the benefits of cohort grouping suggested by Barnett and Musing (1993) and the affective gains of the cohort group reported by Reynold and Hebert (1998). It is noted that Barnett and Musing did not apply a systematic measure of the cohort effect, and Reynold and Hebert measured only a one-time performance

of the groups. In contrast, the present study employed multiple measures and a repeated-measures design. Moreover, the present results are consistent with the study that found some negative impact of cohort grouping on the individual development in a program for training educational administrators (Teitel, 1997). The results also extend the study of Reynold and Hebert (1998) with the finding that the non-cohort group was superior in academic gains to the cohort group.

The lesser academic gain made by the cohort group may be related to the negative social relationship that developed over time in the cohorts. Evidence from the qualitative data showed differential changes in the group relationship over time in the two groups. Whereas the non-cohort group improved over time in the peer relationships, with increased friendship and hence less stress and greater enthusiasm for class work, the cohort group experienced a decline in the quality of peer relationships and an increase in stress related to such relationships. Deteriorating peer relationships may well have interfered with academic progress in the cohort group, since effective interaction with peers is related to high academic achievement, as reviewed earlier (Hodgson & Simoni, 1995; Pascarella, 1985). Indeed, a cohort member at the UMB study reported that "group projects can lead to conflict when all members are not equally motivated" (Teitel, 1997, p. 73). Thus, the cohort group's initial advantages in the social-affective domains appear to produce no greater benefits for academic achievement over time.

Another possible explanation for the less satisfactory academic gain of the cohort group relates to the general group dynamics differentiating the cohort and non-cohort groups. Communication research has demonstrated that the extent to which group members possess similar information affects the ultimate decisions made by the group (Salazar, 1997; Stasser, 1992). Where there is a high degree of homogeneity in group members' information or preferences, there is high consensus on decision-making and hence less impetus for communication (Stasser & Titus, 1985). Research further confirms that heterogeneous groups engage in greater amounts of systematic inquiry in order to make sense of different information or to resolve differences than do homogeneous groups (Salazar, 1997). Through its group structure, a cohort group

constitutes a more homogeneous group than a non-cohort group. On the basis of the communication research reviewed above, a non-cohort group thus would engender more varied experiences and hence opinions, leading to a greater number of challenges and need for systematic inquiry. Greater academic progress in the non-cohort group than in the cohort group would thus be possible.

The present results suggest that an open model of cohort grouping in which students enroll in a core set of classes together with no other substantial measures to connect them may in fact have no greater advantage for students' academic performance than a non-cohort model. Therefore, programs replacing the traditional, independent approach that allow learners to pursue their course work with an open model of cohort grouping would be contraindicated if the goal is to improve the academic performance of new students in teacher education. Alternatively, to enhance academic outcomes for non-cohort groups, efforts need to be made to maintain the positive social relationships over time that cohort groupings naturally generate.

The finding of no differences between groups in social support and university adaptation may be due to the fact that these scales measure general aspects of friendship support and life in the university in general, instead of those specific to the participants' experience in their teacher education program. The participants may thus have drawn from sources other than the Faculty of Education for their responses. It is likely that broader social support existed outside the classroom to compensate for the lack, if any, of social support that non-cohort students may have experienced in their classes. A more vigorous research design to examine the effect of cohort grouping would restrict responses to only the immediate context, such as the class, where the grouping is situated. Moreover, this study did not test the closed model of cohort grouping that requires cooperative learning in addition to the sharing of all courses by the same group of students. The results, thus, are only applicable to a restricted model of cohort grouping and not to other models. Meanwhile, the statistical power of the analysis was limited by the small sample size that may have masked other between-group differences. An expanded sample with a more traditional model of cohort group, in which

members of the group share all course components and engage in cooperative learning in a community of learners, might provide a more realistic evaluation of the cohort model as an instructional delivery format. Further testing of other cohort models for the delivery of higher education is warranted in view of the indication that less favorable academic performance may result from an open cohort model in comparison with the conventional, non-cohort model of delivery of education. Appropriate support programs could then be devised to promote not only students' psychological well-being but also their academic success. ❖

References

Angelo, T.A. (1997). The campus as learning community: Seven promising shifts and seven powerful levers. *AAHE Bulletin, 4919,* May, 3–6.

American Psychological Association Presidential Task Force. (1994, March). *Learner-centered psychological principles: Guidelines for the teaching of educational psychology in teacher education programs.* Washington, DC: Author.

Baker, R.W., & Siryk, B. (1989). *SAC (Student Adaptation to College Questionnaire).* Los Angeles, CA: Western Psychological Services.

Bandura, A, (1982). Self-efficacy mechanism in human agency. *American Psychologist, 37,* 122–147.

Bandura, A. (1986). *Social foundations of thought and action: Social cognitive theory.* Englewood Cliffs, NJ: Prentice Hall.

Barnett, B.G., & Muse, I.D. (1993). Cohort groups in educational administration: Promises and challenges. *Journal of School Leadership, 3*(July), 400–407.

Basom, M., Norris, C., & Barnett, B. (1995). *Exploring cohorts on principal preparation and leadership practice.* (ERIC Document Reproduction Service No. ED 387 857).

Etheridge, C.P. (1986). *The students' perspective: MAT program cycle 1.* (ERIC Document Reproduction Service No. ED 280 838).

Hettich, P.I. (1993). *Inducing students to think about their learning: Four approaches.* (ERIC Document Reproduction Service No. ED 372 039).

Hodgson, C.S., & Simoni, J.M. (1995). Graduate student academic and psychological functioning. *Journal of College Student Development, 36,* 244–253.

Howey, K.R., & Zimpher, N.L. (1989). *Profiles of preservice teacher education: Inquiry into the nature of programs.* Albany, NY: State University of New York Press.

Kent State University. (1989). *Preparing academically talented students for teaching.* Final Report. (ERIC Document Reproduction Service No. ED 307 236).

Kubota, K. (1991). *Applying a collaborative learning model to a course development project.* (ERIC Document Reproduction Service No. ED 331 490).

Lewington, J., & Orpwood, G. (1993). *Overdue assignment: Taking responsibility for Canada's schools.* Toronto, ON: John Wiley & Sons.

Mather, D., & Hanley, B. (1999). Cohort groupings and preservice teacher education: Effects on pedagogical development. *Canadian Journal of Education, 24,* 235–250.

Pascarella, E.T. (1985). College environmental influences on learning and cognitive development: A critical review and a synthesis. In J.C. Smart (Ed.), *Higher education handbook of theory and research* (Vol. 1, pp. 1–61). New York, NY: Agatha Press.

Procidano, M.E., & Heller, K. (1983). Measures of perceived social support from friends and from family: Three validation studies. *American Journal of Community Psychology, 11,* 1–25.

Reynold, K.C., & Hebert, F.T. (1998). Learning achievements of students in cohort groups. *Journal of Continuing Higher Education, 46,* 34–42.

Saracoglu, B., Minden, H., & Wilchesky, M. (1989). The adjustment of students with learning disabilities to university and its relationship to self-esteem and self-efficacy. *Journal of Learning Disabilities, 22,* 590–592.

Salazar, A.J. (1997). Communication effects on small group decision-making: Homogeneity and task as moderators of the communication-performance relationship. *Western Journal of Communication, 61*(1), 35–66.

Sherer, M., Maddux, J.E., Mercandante, B., Prentice-Dunn, S., Jacobs, B., & Rogers, R.W. (1982). The Self-Efficacy Scale: Construction and validation. *Psychological Reports, 51,* 663–671.

SPSS Inc. (1997). *SPSS advanced statistics 8.0 update.* Chicago, IL: SPSS Inc.

Stasser, G. (1992). Pooling of unshared information during group discussion. In S. Worchel, W. Wood, & J. Simpson (Eds.), *Group process and productivity* (pp. 48–67). Newbury Park, CA: Sage.

Stasser, G., & Titus, W. (1985). Pooling of unshared information in group decision-making: Biased information sampling during discussion. *Journal of Personality and Social Psychology, 48,* 1467–1478.

Strauss, A.L., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques.* Newbury Park, CA: Sage.

Teitel, L. (1997). Understanding and harnessing the power of the cohort model in preparing educational leaders. *Peabody Journal of Education, 72,* 66–85.

Weinstein, C.S. (1988). Preservice teachers' expectations about the first year of teaching. *Teaching and Teacher Education, 4,* 31–40.

Wood, R.E., & Locke, E.A. (1987). The relation of self-efficacy and grade to academic performance. *Educational and Psychological Measurement, 47,* 1013–1024.

Yerkes, D.M., Basom, M.R., Norris, C. & Barnett, B. (1995). *Using cohorts in the development of educational leaders.* (ERIC Document Reproduction Service No. ED 387 858).