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Some believe that the longer the face to face classroom meeting time, the more effective the learning experience. Others point out disadvantages of lengthier classes (e.g., student attention problems). The authors assess which of three class formats (i.e., 1 hour/three times a week, 1½ hours/twice a week, or 3 hours/one time a week) is optimal in terms of student (a) perspectives, (b) grades, and (c) evaluations of instructor performance. The authors observed that regardless of major, students prefer the twice a week class format, and marketing majors had the strongest preference for that format. All students believed the once a week format would result in lower levels of learning. Instructors teaching in the twice a week format received higher evaluations from students. And finally, there appears to be slightly better student grade performance in shorter classes, especially evident with marketing majors attending the twice a week format.

Keywords: *class length; class format; evaluations; performance; marketing*

Classroom educators seek to provide students with the most effective learning experience. One aspect of this challenge revolves around how long students and their instructors meet face to face in the classroom for a given learning session. According to Brookfield (2003), conventional educational wisdom is that increased face-to-face time

> is necessary for learners to develop intellectual rigor and analytical depth. Teachers are said to need sufficient time to model the analytical behaviors they wish to encourage in learners. Extended contact time and a teacher's skilled help are also believed to be necessary so that learners are able to uncover dimensions and applications of ideas that would remain hidden in online or independent study environments. (p. 73)

Despite this view, students do not have an unlimited attention span or an unlimited ability to process information. Therefore, as continuous face-to-face classroom time increases, a point of diminishing returns to learning is reached. Furthermore, almost all universities must treat total classroom time for a given course as a fixed and limited resource. Traditionally, a three-credit, semester-based course includes approximately 3 hours of classroom instruction per week. Given this constraint, how should these 3 hours be distributed weekly to optimize learning and meet the scheduling preferences of students?

The purpose of this article is to assess which class length meeting is optimal in terms of the outcomes of student (a) perspectives, (b) grades, and (c) evaluations of instructor performance. Class formats of interest are (a) 1 hour/three times a week (hereafter labeled *short format*), (b) 1½ hours/two times a week (hereafter labeled *moderate format*), and (c) 3 hours/once a week (hereafter labeled *intensive format*). This article also examines whether there are differences in the learning outcomes between marketing majors and other business majors.

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LITERATURE

There are no studies, to the authors' knowledge, that focus on student perceptions of which class length is preferred or which length students believe will result in greater learning. Likewise, it appears there are no studies that have attempted to isolate the relationship between class format and either grade performance or instructor evaluations.

Henebry (1997) studied financial management courses over a 10-year period and compared pass rates for classes that met one, two, or three times per week. She concluded that students had a better chance of passing the course in those classes that met more than once per week. It was suggested that the more frequent classes allowed students sufficient time to ruminate on classroom material and to seek help. If students became lost in the once a week class, they were unable to catch up because there was no time to absorb material prior to new concepts being presented.

Although the authors found only one study that specifically addressed class formats, there are numerous studies indirectly associated with class format, many of which investigate how traditional semester-long or quarter-long courses compare to intensive courses (e.g., winter and semester intersession courses). The intensive courses meet more frequently per week and for a longer period of time per session than traditional semester-long or quarter-long courses. In a review of intensive courses across disciplines, Daniel (2000) concluded that intensive courses yield similar learning outcomes to traditional semester-length or quarter-length courses. However, the author also pointed out that students in intensive courses tend to be older, more motivated, and better prepared, which may have biased the comparison. Unfortunately, additional business school research at the undergraduate level yields mixed learning outcomes from traditional class formats compared to intensive class formats.

Several studies reported no significant difference in the performance of business undergraduates enrolled in semester-long courses versus those in more intensive courses. Rayburn and Rayburn (1999), for example, compared intensive and traditional managerial accounting courses and found student performance on multiple choice questions did not vary between the courses. Similarly, Ewer, Greer, Bridges, and Lewis (2002) found no difference in student performance for intensive versus traditional courses of financial and managerial accounting. And finally, Caskey (1994) found no significant differences in the academic performance of accounting students in a regular semester course compared to an intensive course. Despite finding no significant differences in performance between the two formats, Rayburn and Rayburn did report that students enrolled in the traditional class performed significantly better on more complex problem-solving questions than did their intensive course counterparts. This finding was also supported by Petrowsky (1996), who found that students in an intensive macroeconomics course had diminished academic performance on economic topics that stressed comprehension and analysis over mere recall.

In contrast to the aforementioned studies, Grimes and Niss (1989) found that students in an intensive economics class performed better than those in a traditional semester format. However, in this study a major portion of classroom time in both formats was used to show videotapes called *Economics U$A*. Van Scyoc and Gleason (1993) also compared student performance in an intensive versus a traditional economics course and reported that standardized exam scores from the intensive course were significantly higher than for the traditional course. However, this advantage disappeared when students were tested on a knowledge retention exam.

In sum, our knowledge concerning the impact of various class formats is extremely limited. Only one study was found that specifically addressed class formats and reported a positive relationship between meeting frequency and learning outcomes. Other research comparing traditional semester-long or quarter-long classes to intensive class formats concluded a mixed relationship between class format and learning outcomes. As a result, the authors of this article attempt to further clarify our understanding of class format impact.

HYPOTHESES

Students might actually prefer to register for an intensive class format that meets once a week. The primary advantage of the intensive format is convenience of scheduling (Daniel, 2000). Meeting once a week, typically in the evening, gives the student an option of working or accepting internships while going to college. Another advantage is that more stimulating pedagogical learning opportunities may be possible with an intensive format (Daniel, 2000).

However, there are also numerous disadvantages to an intensive format. Petrowsky (1996) reported that students who completed an intensive course found it more stressful and overall were less satisfied with the course than students who completed a traditionally formatted course. This could be because students who take intensive courses complain about the lack of time to cover material and to complete assignments (Smith, 1988) or because students tend to experience information overload and attention problems during the last portion of a lengthy class period (Henebry, 1997). In addition, negative faculty attitudes toward intensive formats may also color student perceptions. Scott and Conrad (1991) reported that faculty view intensive courses as less effective in enhancing student learning. Furthermore, Tracey, Sedlacek, and Patterson (1980) found faculty are more fatigued in intensive formats.

Short class formats may be better aligned with the average student's span of attention and as Henebry (1997) concluded, may give the student time between classes to ask questions and/or synthesize material. Yet this format does have other drawbacks, such as (a) reliance on traditional pedagogical techniques to cover smaller blocks of content (e.g., lecture) that may stifle classroom interaction; (b) less

student flexibility in scheduling work, internships, or extracurricular activities; and (c) loss of momentum when covering complex topics that need to be split between one class period and the next (Henebry, 1997).

Because of the disadvantages of both the intensive format and the short format, the class format most preferred by students may be somewhere in between these two. For example, if a student registers for classes that meet twice a week, the student likely retains some scheduling flexibility. At the same time, students in the moderate class format would likely not be as stressed or fatigued as those students participating in intensive classes. A moderate class format may also accommodate a wider array of pedagogical techniques than can a short class. Therefore we expect,

Hypothesis 1: A moderate class format will be more desirable than an intensive class or a short class format.

Students' perceptions of what they have learned in a class can be affected by the opportunity to interact with the professor during class time to discuss topics in more depth or experience a variety of stimulating pedagogical techniques. Because the short format considered in this article tends to allow less student discussion and in-depth investigation of complex issues (Henebry, 1997), students will likely feel that they are not learning as much as they might during class time.

Even though intensive classes offer students more opportunity for interaction with the professor during class time and more opportunity to experience a variety of pedagogy, presumably increasing the level of learning, research indicates that learning in this format may not be optimal. For example, surveys indicate that in intensive formats, faculty feel fatigued and do not feel that students are able to fully synthesize the course content (Tracey et al., 1980), that students experience information overload and attention problems during the latter portion of a class period that is 3 hours in duration (Henebry, 1997), and that students feel stressed and are generally dissatisfied with intensive courses (Petrowsky 1996). In other words, there may be diminishing returns to spending more time in the classroom each time the class meets (Fredrick & Walberg, 1980). Based on these disadvantages, students may not only feel they are learning less in an intensive format but may also earn lower grades than in other class formats. In support, Di (1996) found that students enrolled in intensive classes (once a week evening classes) earned lower grades than students enrolled in more traditional class formats (twice a week day classes).

In addition, Chen, Gupta, and Hoshower (2004) noted two theories that explain the relationship between a student's expected grade and the impact of this expectation on an instructor's evaluation. First, according to equity theory a student will assess his or her inputs into a situation with the outcomes of the situation. Perceived inequity or fairness in the exchange provides the motivation to fill out an instructor evaluation accordingly. Second, based on expectancy theory (see Vroom, 1964), if students believe there will not be positive outcomes from a class, this can lead to lowered motivation to exert effort in learning and may therefore be a self-fulfilling prophecy of lower grades. And unfortunately, lower grades appear to be associated with lower instructor evaluations (see Aleamoni, 1999).

Wachtel (1998) discussed three possible theories to explain this relationship: (a) the leniency hypothesis that students reciprocate the leniency, or lack thereof, that instructors show them; (b) the validity hypothesis that bad teachers are rated unfavorably because they do not help students to reach their potential to learn and do not help students to earn good grades; and (c) the student characteristic hypothesis that preexisting differences between students explains both negative evaluations and lower grades.

Chambers and Schmitt (2002) presented a model that combines aspects of both the leniency and validity hypotheses. They suggested that students not only develop a mental scheme about the reciprocity due to instructor (leniency hypothesis), they also validate the payoff/effort by assessing how they think they will be graded in a specific class compared to other classes requiring a like amount of effort (validity hypothesis). Addison, Best, and Warrington (2006) took this a step further by suggesting that students also compare the payoff/effort to the original expectation about the difficulty of the class. They stated,

> For example, a hypothetical student who usually earns Bs in most classes but who is struggling to earn a B in a course perceived as "easy" may attribute the relative difficulty in getting a B to the instructor's poor teaching methods, and thus evaluate the instructor less favorably. (p. 412)

Not surprisingly, Clayson and Haley (1990) found that the rigor of a class, more reflective of intensive class formats, has a negative impact on instructor evaluations.

The moderate class format would facilitate more student-instructor interaction during class time, permitting more discussion and a wider range of stimulating pedagogy for a specified class period. Yet the moderate class format would not be burdened with many of the disadvantages of an intensive class format that can negatively affect learning. In support, class formats of moderate class length where the material is more focused but not excessively so may be associated with better learning outcomes (Grimes & Niss, 1989). There is some evidence that the amount of student learning in a class is associated with higher instructor evaluations (Clayson & Haley, 1990).

Hypothesis 2: Students perceive they learn more in a moderate class format than a short class format or an intensive class format.

Hypothesis 2a: Students will perform better in a moderate class format than a short class format or an intensive class format.

Hypothesis 2b: Students will rate professors higher in a moderate class format than an intensive class or a short class format.

When teaching marketing subject areas such as new product development and positioning, ad creation, or sales promotion, there is a greater need to include a variety of innovative pedagogical techniques (Peterson, 1996). Relative to other business disciplines, marketing educators are increasingly emphasizing a wider variety of pedagogical techniques, including experiential and active-learning experiences (Karns, 2005). LaBarbera and Simonoff (1999) also reported that one benefit of being a marketing major is enhanced behavioral/creative skill acquisition, compared to the higher technical/analytic skills that can be acquired by a finance major. There is also some evidence that students select the marketing major precisely because they are attracted to a major that will help to develop these skills (West, Newell, & Titus, 2001). This was supported by Ulrich (2005) and Karns (2005), who suggested that marketing students tend to be more person oriented than object oriented in their learning preferences and believe that person-oriented courses of study (e.g., cooperative learning and experiential learning strategies such as case studies, internships, and class discussion) are more helpful to their learning. Quite the opposite preferences are evident with accounting and finance majors, who find a more traditional object-oriented pedagogy helpful.

Although a wide variety of pedagogical techniques that stimulate "right-brain" processes may be used in shorter classes by individual instructors, this variety is easier to obtain in lengthier class formats. Thus, the authors would expect marketing majors to prefer and expect to learn more in longer classes. Because students tend to perform relatively better in person-oriented courses than object-oriented courses (Ulrich, 2005), the authors predict that marketing students will perform better in moderate or intensive class formats than will other majors. As stated previously, both higher levels of student learning (Clayson & Haley, 1990) and higher learning outcomes such as grades (Aleamoni, 1999) are positively associated with higher instructor evaluations.

Hypothesis 3: Marketing majors will prefer and expect to learn more in moderate or intensive class formats than other majors.

Hypothesis 3a: Marketing majors will perform better, on average, in moderate or intensive class formats than other majors.

Hypothesis 3b: Marketing majors will rate professors higher in moderate or intensive class formats than other majors.

METHODOLOGY

Study 1

The sample for this study included a survey of 467 undergraduate students at four universities enrolled in upper division marketing courses. The survey instrument included attitudinal items on each class format (short, moderate, and intensive), class format preference, and expected learning from each class format. In addition, students were requested to provide demographic and class standing information, such as major, classification, grade point average (GPA), gender, work hours per week, and whether they were full- or part-time students. Majors were specified as marketing, general business, management, accounting, or other. Due to the limited number of responses from finance and computer information systems majors, they were grouped with economics and other majors.

TABLE 1
MEASURES

Construct/Items	*Cronbach's Alpha*
Attitude toward the class length[a]	
I think that XX minute classes are:	
Good . . . Bad	.931
Appealing . . . Unappealing	
Interesting . . . Boring	
Expected learning for class length	
I tend to learn more in this length of class.	
It is easier to keep up with the material from class to class.	.711
There is more variety in how we are taught in these classes.	

a. Adapted from Mitchell and Olson (1981).

Students were asked four 7-point semantic differential scale questions about the desirability of the three class formats. These were followed with three 7-point Likert scale questions about how the class was conducted and how valuable it was for learning. Exploratory factor analysis was used to reduce the greater number of variables down to two factors: (a) Attitude Toward Class Format (AClass) and (b) Expected Learning for the Class Format (Learn) (see Table 1).

To measure a student's preference toward taking a particular class format, students were asked to indicate the degree to which "I prefer to take these classes as much as possible" (preference). This was done for each class format, utilizing a 7-point Likert scale.

A multivariate general linear model (GLM) was run to determine which classes were most preferred as well as which ones offered the highest perceived learning potential. The GLM models included both a linear and polynomial contrast version. In each case, the polynomial contrast model performed significantly better and was thus used in the final model.

Study 2

While Study 1 addressed the students' attitude and preference toward class length, the second study examined actual outcome measures—average class grade and instructor evaluation scores. Specifically, 1,179 business course sections across all business disciplines over a period of 5 years were examined by class length and other variables that could potentially affect either course GPA or evaluations. This constituted a census of all business classes at a university in the

TABLE 2
STUDY 2: OPERATIONALIZATION OF MEASURES

Variable	*Description*	*Type*	*Descriptives/Definitions*
		Dependent variables	
Instructor evaluation	Average instructor evaluation for the course (1 to 5 scale, with 5 = *outstanding*)	Dependent variable	Range = 2.04 to 5.00 Grand mean = 3.84
Class grade point average (GPA)	The average GPA for each class (standard 4.0 grading scale)	Dependent variable; random factor for instructor evaluation analysis	Range = 1.43 to 4.00 Grand mean = 2.75
		Criterion variable of interest for this study	
Class length	The length of meeting time for each class—moderate class format treated as baseline for analysis	Criterion variable	Three categories: Short, moderate, or intensive
		Covariates/random factors used to partial out variance	
Start time	The hour each class began	Random factor	17 time slots
Enrollment	Number of students—Courses with less than 5 students were not considered for this study (e.g., independent/directed study or internship courses)	Covariate	Range = 5 to 66 Grand mean = 31.2
Department	Department where the class was registered	Random factor	Five departments
Instructor	Name of full-time instructor; part-time listed as "staff," which accounted for 21% of all classes taught	Random factor	39 instructors

	Means by Format			
	Instructor Evaluation		*GPA*	
Format	M	N	M	N
Short (1 hour)	3.83	524	2.77	535
Moderate (1½ hours)	3.84	535	2.74	546
Long (3 hours)	3.93	73	2.81	78

Western United States over a 5-year time frame. It should be noted here that the scheduling process for business classes at this university leads to a basic rotation of most, if not all, business courses over time between the short, moderate, and intensive class formats. This was an important consideration in avoiding any built-in bias relative to a given class format. Study 2 components are itemized in Table 2, including a list of both dependent variables, the criterion variable of class length, and the four covariates/random factors that were used to partial out model variance.

The data for Study 2 were analyzed using a GLM model (i.e., ANOVA). To avoid model underspecification, both variables of interest (hypothesized effects) and other available random factors/covariates were included in the model. Likewise, to avoid reductions in power and model overspecification, only a single interactive term (Department × Class Format) was examined. Due to the high number of categories (see Table 2), any consideration of a full factorial model for analysis was not impossible. In addition, exploratory graphs of the data indicated that the effects of class format may be differential. Therefore, a polynomial contrast was explored and ultimately adopted and reported due to its better fit.

The available covariates included enrollment (Davidovitch & Soen, 2006; Kulik & Kulik, 1974) for both dependent variables as well as class GPA as a covariate of instructor evaluations (Addison et al., 2006; Aleamoni, 1999). Random factors used to partial out variance of both class GPA and instructor evaluations include class start time (Di, 1996), department (Davidovitch & Soen, 2006), and instructor (Clayson & Haley, 1990; March & Roche, 1997) (see Table 2).

As noted by Wachtel (1998), most studies show that smaller class size or enrollment is related to higher faculty evaluations. It appears that smaller class size leads to higher ratings through higher levels of group interaction and instructional rapport (March, 1987; March & Dunkin, 1992). In addition, class GPA has long been thought to be related to instructor evaluations. Wachtel (1998) reported research consensus that students expecting higher grades will give higher ratings. It follows that students' collective expectation of higher grades will have a positive relationship

TABLE 3
STUDY 1: RESULTS

	Class Format R^2, F, *and* p *Values*	*Means for Groups Duncan Test Class Format*	*Hypothesis*	*Interactive Term[a]: Format × Major*
Dependent: Attitude toward class format	R^2 = .298 F = 30.07 p = .000	Short format = –0.399 Medium format = 0.618* Long format = –0.401	Hypothesis 1: Supported Hypothesis 3: Not supported	F = 2.71 p = .006
Dependent: Preference toward taking a particular class format	R^2 = .306 F = 42.94 p = .000	Short format = 3.04 Medium format = 5.16* Long format = 2.88	Hypothesis 1: Supported Hypothesis 3: Not supported	F = 1.35 p = .215
Dependent: Expected learning for the class format	R^2 = .089 F = 4.65 p = .010	Short format = 0.092 Medium format = 0.158 Long format = –0.240*	Hypothesis 2: Partially supported Hypothesis 3: Not supported	F = 2.72 p = .006

a. Factor of students major is insignificant in all cases and therefore not reported.
*Significantly different from other groups at p = .05.

with actual class grades (or class GPA) and will therefore result in higher overall evaluations.

The relationship between class start time and instructor evaluations has been limited. Nonetheless, Koushki and Kuhn (1982) found that very early morning classes, very late afternoon classes, and classes shortly after lunch receive the lowest ratings. Differences in teacher evaluations between departments (or subject areas) have been found. For example, instructor ratings in mathematics and the sciences rank lower than other subjects (see Wachtel, 1998). It is likely that there will also be differences in ratings between business departments. Not surprisingly, the instructor himself or herself has been found to have an impact on ratings. Specifically, Clayson and Haley (1990) found that instructor knowledge and interest and instructor personality were related to evaluations. It is conceivable that enrollment, class time, department, and instructor will also have an impact on class GPA.

RESULTS

Study 1

The GLM model of preferences and learning potential for the different class formats is significant in all cases. The original GLM model contained demographic and class standing variables (e.g., gender, class status, GPA, age, hours worked). However, none of these was significant—neither to the main effect nor to the interactive terms. Therefore, the model was reduced to the simplest form where the three measures of interest (preference, AClass, and learn) represent dependent variables and class format and major represents the independent factors. Table 3 shows the results.

As for Hypothesis 1, results in Table 3 show that students find the moderate class format significantly more appealing than either of the other two formats based both on attitude toward the class formats (Aclass) and students' preference for the class formats (preference). This finding was consistent across the four universities and yielded no significant differences, thereby offering support for Hypothesis 1.

In regard to Hypothesis 2, there were only marginal, insignificant differences between the short class format and the moderate class format on the expected learning dimension (based on a Duncan post hoc test, p = .574). However, students do believe that both the short and moderate class formats result in significantly higher learning than would be derived from the intensive class format. Thus, there is partial support for Hypothesis 2.

The results for the third hypothesis suggest that the interaction term for Format × Major is significant for both AClass and learn but not for preference. Closer examination indicates that while marketing majors prefer and perceive they learn more in moderate format classes, other majors are even higher in these measures. Thus, Hypothesis 3 must be rejected.

Study 2 Results

The results of the GLM analysis for Study 2 indicate a good fit of the proposed model (R^2 of .398 for instructor evaluation and .530 for class grade), as indicated in Table 4. To compare the impact of class format with the impact of the variables used to partial out variance of the dependent variables (instructor evaluation and class grade average) the eta squared statistic is presented to show the relative explanatory power of each. As shown in Table 4, the effect size of class format on instructor evaluations is larger than or equal to all of the effect sizes of the other variables, with the exception of instructor. The effect size of class format on class grade point average is about the same as start time and department but lower than both instructor and enrollment. Because of the large effect size associated with the instructor variable on both outcomes (i.e., eta squared of .328 on instructor evaluation and eta squared of .280 on class grade point average) compared to the effect size of class format, the instructor variable should definitely have a more prominent role to play in future models.

TABLE 4
STUDY 2: ANOVA RESULTS

	Instructor Evaluation Average $R^2 = .398$; $F = 9.30$, $p < .001$		*Class Grade Point Average* $R^2 = .530$; $F = 16.28$, $p < .001$	
	F *statistic or (Coefficient)/Partial Eta*^{2}	*Significance Level (Degrees of Freedom)*	F *Statistic or (Coefficient)/ Partial Eta*^{2}	*Significance Level (Degrees of Freedom)*
Class format	*F* = 7.40/Eta 0.14	.001 (2)	*F* = 2.71/Eta 0.005	.067 (2)
Short[a]	(–0.093)	.06	(0.192)	.002
Intensive[a]	(–0.089)	.023	(–0.690)	.043
Class Format × Department	*F* = 0.515/Eta 0.004	.864 (9)	*F* = 3.411/Eta 0.031	.000 (10)
1 hour[b]	None significant	None significant		
General Business			(–0.236)	.015
Accounting			(–0.178)	.022
Information Systems			(–0.093)	.207
Finance			(–0.175)	.02
Management			(–0.169)	.025
3 hour[b]	None significant	None significant		
General business			(0.042)	.868
Accounting			[d]	.003
Information systems			(0.074)	.579
Finance			(–0.302)	.006
Management			(0.111)	.432
Covariates and random fixed factors				
Start time	*F* = .791/Eta 0.13	.705 (17)	*F* = 3.03/Eta 0.048	.000 (18)
Enrollment	*F* = 13.19/Eta 0.12	.000 (1)	*F* = 129.36/Eta 0.107	.000 (1)
Instructor	*F* = 13.21/Eta 0.328	.000 (39)	*F* = 10.80/Eta 0.280	.000 (39)
Department	*F* = 2.92/Eta 0.14	.013 (5)	*F* = 8.87/Eta 0.039	.000 (5)
Class grade point average[c]	*F* = 11.73/Eta 0.11	.001 (1)	n/a	n/a

a. Moderate format is baseline.
b. Marketing is baseline.
c. Used only in estimate of instructor evaluation.
d. Only a single course offered in accounting using the 3-hour format.

The results indicate that Hypothesis 2a (students will perform better in a moderate class format than the other two formats) should be rejected. The results of Study 2 indicate that class format has an overall marginal effect on class GPA ($F = 2.71$, $p = .067$). Overall, students in the short format did slightly better (about two tenths of a grade, coefficient = .192) than those in the moderate format. However, students in the intensive format did significantly worse (by nearly three fourths of a grade point, coefficient = –.69). Although obviously other factors affect student performance in class, there appears to be slightly better performance in the short class format.

The results indicate support for Hypothesis 2b. Overall, class format had a significant impact on instructor evaluations ($F = 7.40$, $p = .001$). Instructors teaching both the short and intensive format classes received lower evaluations than those teaching in the moderate format. In fact, the size of the deviation (coefficients between .089 and .093) is nearly one third of the standard deviation of overall class evaluations (standard deviation = .320). These results indicate that teaching a moderate class format may potentially boost instructor evaluations significantly higher than if the same instructor taught a short or intensive class format.

In support of Hypothesis 3a, the analysis on average class GPA indicated that marketing majors did better than other majors. Specifically, marketing majors did better in the moderate format than in the short or intensive formats compared with other majors because the coefficient on the interactive terms for other disciplines are negative for the short and intensive formats. The exception to this was the one accounting course that was offered in an intensive format. Specifically, of the 10 interactive terms (moderate class format and marketing standing as the baseline), 6 were negative and significant, 1 positive and significant (the one accounting intensive format class), and 3 nonsignificant. Thus, it appears that marketing majors in this sample not only perform better in short and moderate formats (as did all business students overall) but perform significantly better in moderate course formats than did other business majors. This was indicated by the negative and significant coefficients on the major by format interaction for other majors compared to marketing as well as the lack of significant positive coefficients on this interactive term.

Overall, the results indicate very limited and mixed support for Hypothesis 3b. Overall, only one accounting course meeting in an intensive class format had higher instructor evaluations than average (coefficient = 1.025, $p = .000$).

However, the data set contained only one observation that fit this constraint and therefore can be regarded as idiosyncratic to that particular course.

DISCUSSION

Students' Perceptions of Class Format

The results of this study show that regardless of major (marketing majors, other business majors, or other nonbusiness majors), students prefer the moderate class format to the other two formats. Students may prefer this format because they may retain some of the flexibility in scheduling (3 days are open for other activities) and yet may not be as stressed or fatigued as in an intensive 3-hour once a week class, allowing them maximum scheduling flexibility. As noted by Henebry (1997), even with a 10-minute break in the middle of a 3-hour class, students struggle to fully attend to the content in the last portion of the class. This may in part explain why regardless of major students in this study believe the more intense class format will result in lower levels of learning than the other two formats. The theory that there may be diminishing returns between classroom time and learning (Fredrick & Walberg, 1980) or an optimal efficient class length (Grimes & Niss, 1989) may be in effect.

As mentioned previously, pedagogical variety may be obtained in any class format but may well be easier to obtain in lengthier class formats. Furthermore, pedagogical variety may be better appreciated by marketing majors than other majors because of the nature of the marketing major itself. The marketing major focuses on developing more behavioral/creative skills than other majors (LaBarbera & Simonoff, 1999), skills that are more congruent with pedagogical variety. This may explain why marketing majors have stronger preference for the moderate class format than other majors.

Taken together, the results of this study suggest that more moderate class formats should be offered to students. However, there may be administrative constraints such as facility utilization that need to be addressed prior to implementation. Some administrations have suggested that moving from a 5-day-a-week schedule (MWF and TuTh) to a 4-day-a-week schedule (MW or TuTh) leaves physical facilities underutilized. In fact, colleges with high facility utilization rates may not physically be able to accomplish this shift. However, this assumes that a 1½-hour/twice a week schedule mandates a 4-day week, as opposed to scheduling classes MW, MF, and WF, thus maintaining and even marginally increasing facility utilization because it requires fewer breaks between classes.

Class Format and Outcome Measures (Grades and Instructor Evaluations)

When looking at all students in the sample, regardless of major, the authors found that class format had only a marginal impact on students' grades. Student performance in the intensive class format was the lowest, and student performance in the short class format was found to be slightly better. In contrast to these marginal effects, marketing majors did outperform other business majors in all class formats; this was especially evident in the moderate class format. Marketing majors may outperform other majors because they prefer and experience a greater variety of innovative pedagogical techniques than do other majors (Karns, 2005; LaBarbera & Simonoff, 1999; West et al., 2001). Ulrich (2005) suggested that students exposed to experiential and active learning strategies perform relatively better than students who have less exposure to these techniques.

Overall, students across all majors rated instructors of moderate class formats significantly higher than instructors of the other two class formats. The strength of this finding (i.e., coefficients explain a significant amount of variation) has major implications to instructors. An instructor can significantly boost his or her instructor evaluations by teaching in the moderate class format rather than the short or intensive class format. Students may rate instructors higher in the moderate format because they may come to the conclusion that the moderate class format is the optimal format for learning, to discuss topics in more depth, and to experience a variety of stimulating pedagogical techniques without reaching the point of diminishing learning returns as a result of fatigue or rigor (Fredrick & Walberg, 1980; Grimes & Niss, 1989). When students believe they learn more from a given class, this belief is related to higher instructor evaluations (Clayson & Haley, 1990). The most significant impact on both instructor evaluations and GPA is the instructor variable. This is indicative that the major determinant of both evaluations and GPA is the instructor who teaches the class—not a surprising finding.

LIMITATIONS AND FUTURE RESEARCH

There are some limitations that warrant mention in this article. One is that this study focused only on three specific formats. Even though these three formats are common in most semester-based colleges, other more effective formats (e.g., 2-hour/twice a week format) could exist but were not assessed in this study.

Furthermore, although the authors tried to incorporate as many variables as possible in the form of covariates or other variables used to factor out the variance of the dependent variables, there were data constraints. Future research could lead to the identification of additional variables that the literature indicates could impact these outcomes. For example, prior research shows a relationship between instructor evaluations and (a) student attendance (Davidovitch & Soen, 2006), (b) student expectations at the beginning of a course about what amount of effort is required to earn a grade (Addison et al., 2006), (c) student perceptions about the fairness of grading in the course (Clayson & Haley, 1990), and

(d) type of class, for example, mandatory versus elective (Davidovitch & Soen, 2006). And as mentioned by one reviewer, it is conceivable that students' attitudes toward class formats may be impacted by the structure of the class (e.g., seminar vs. lecture).

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