Learning Styles of On-Campus and Off-Campus Marketing Students: The Challenge for Marketing Educators

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Using the Solomon-Felder Learning Styles Index, the authors examine how learning styles of marketing students differ across on-campus and off-campus teaching modes, as well as across various sociodemographic variables. In addition, they identify learning segments for each teaching mode using cluster analysis. This enables more accurate targeting of teaching styles to the learning needs of each of the main student segments. Three student segments are identified in each sample. While some similarities between segments exist across teaching modes, distinct differences are found implying a need to tailor teaching strategies differently for on-campus and off-campus students. The relationship between student preferences for teaching techniques and learning styles is also examined. The teaching preferences of many off-campus students is suggestive of incongruence in the teaching approach of typical off-campus courses and indicates a need to develop innovative approaches to teaching students using this mode of study.

Keywords: *targeting learning; teaching styles*

Recognition of students' learning styles is regarded by many educators as a vital part of an effective teaching strategy. Considerable research has occurred in many disciplines to determine which learning styles are most prevalent among students. Various learning styles indexes have been developed, including the Grasha-Reichmann Learning Styles Index (Reichmann and Grasha 1974), Kolb's (1984) Theory of Experiential Learning, and the Index of Learning Styles by Solomon and Felder (1999). Some researchers have also used personality indicators, such as Myers-Briggs–type indicators, to identify learning preferences (Borg and Shapiro 1996). Several studies have also been conducted using these indexes to identify learning styles among marketing students (e.g., Sood and Valentine 1983; Tom and Calvert 1984). Understanding students' learning styles has been a concern to many educators because of research findings that have demonstrated that where teaching styles are compatible with student learning styles, students retain information longer, apply it more effectively, have a more positive attitude to their subjects, and are greater achievers (Charkins, O'Toole, and Wetzel 1985; Felder and Silverman 1988; Boles, Pillay, and Raj 1999). However, it should also be noted that not all researchers ascribe to this perspective: some assert that there is a lack of evidence to support the view that matching teaching and learning styles is educationally significant (Robotham 1999), while others suggest that students can be trained to develop a versatile learning style (Smith 2001). This polarization of views in itself is sufficient to warrant further research, particularly given that we as marketing educators want to be as much marketers as we are educators, and successful marketing is the outcome of adopting the customer's viewpoint (Czinkota and Kotabe 2001).

An important question when considering learning styles is, Who are our customers? On one hand, our customers include our students who want involvement and realism to enhance their learning (Johnson, Johnson, and Golden, 1996), as well as lecturers who are interesting, knowledgeable, relevant, helpful, organized, empathetic, humorous, and who facilitate discussion (Carlson and Schodt 1995; Kelley, Conant, and Smart 1991; Kothari, Rana, and Khade 1993). Yet the demand from our students for education is derived from the demand of employers for graduates. The literature suggests that the business community wants graduates with the ability to handle change, to communicate effectively, to be

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analytic, and who can make decisions (Roach, Johnston, and Hair 1993). Specifically, to function well in a profession, graduates need the ability to work well in all learning styles, and consequently, marketing educators should build skills across all styles (Felder 1996). Hence, it needs to be recognized that marketing educators have a dual customer base whose needs may contradict. This does not imply that it is pointless to recognize learning styles. Rather, it suggests that students will respond favorably to the use of certain teaching methods, but that other teaching methods—possibly less liked by students—should also be used to develop well-rounded students.

The tailoring of teaching strategies according to students' learning styles is potentially becoming more complicated with the increasing use of alternative teaching modes. In addition to traditional on-campus or face-to-face delivery, many universities now deliver their subjects to students who are located off-campus. For some universities, this involves providing solely online or Web-based learning, while others provide a more hybrid learning environment that combines Web-based learning with some aspects of on-campus learning, for example, provision of study notes and periodic weekend schools. Little is known about how the incidence of different learning styles changes across teaching modes. Self-selection is likely to mean that many students selecting an off-campus mode will tend to have different learning styles than on-campus students. However, for many students, distance study is the only available teaching mode because of isolation, cost of relocating, and family and community ties. These students may well have similar learning styles to on-campus students. This suggests a potential problem for these students, where the innovative off-campus option may provide less than an optimal educational experience if these students actually prefer traditional, on-campus styles of learning (Schellens and Valcke 2000). The marketing corollary is that there is a need to identify the different student segments within each teaching mode.

Segmenting of students is not something typically done in studies of student learning styles. However, the benefits of doing so will be obvious to marketing educators with a background in target marketing. Learning styles are generally measured using several different constructs, such as being an active or reflective learner, or a verbal or visual learner. While it is useful to know which learning styles can be found in the student population (e.g., most students are visual), it is more desirable to know which combinations of styles are found in the population (e.g., half of the students are visual-active learners, one quarter are visual-reflective, and one quarter are verbal-reflective). Understanding the different segments within each student cohort provides more information that can be used for tailoring of teaching strategies for the benefit of both students and their future employers.

A number of research questions result from this discussion. First, what learning styles are prevalent among marketing students, and does this differ across student cohorts? Second, are there identifiable and meaningful segments within the marketing student population? For target marketing of a product to be viable, segments must be identifiable, of sufficient size, and reachable. Furthermore, are the segments similar across different student cohorts? Finally, if it is possible to identify different segments, do student preferences for teaching methods differ across segments? If so, what implications does this have for methods of teaching?

The structure of this article is as follows. First, student learning styles are reviewed, then the research method used is detailed. Next, the results of the hypothesis tests are presented. Finally, implications of this research for teaching practice are discussed.

LEARNING STYLES

As far back as ancient Greece, it was noted that students have different approaches to learning (Diaz and Cartnal 1999; Wratcher et al. 1997). These individualistic learning approaches are referred to as learning styles, which are often defined as "characteristic cognitive, affective, and physiological behaviours that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment" (Ladd and Ruby 1999, p. 363). The rationale for identifying learning styles is that a 'one size fits all' teaching style is inherently exclusionary and inhibits efficient and effective learning (Wynd and Bozman 1996).

Researchers have developed various measurement instruments in an attempt to categorize how students learn. Three have received the most academic attention: the Grasha-Reichmann Learning Style Scales (Reichmann and Grasha 1974), the Kolb Learning Style Inventory (Kolb 1996), and the Solomon Felder Index of Learning Styles (Felder 1993; Solomon and Felder 1999). In this research, a learning style index was needed that was focused primarily on learning styles, was comprehensive, parsimonious, and contemporary. Accordingly, we excluded the Grasha-Reichmann index because of its focus on motivations for learning and chose the Solomon-Felder index because it is relatively short and covers more dimensions of learning than the Kolb inventory.

The Solomon-Felder Index of Learning Styles has four dimensions. First, the *active/reflective* dimension shows how students prefer to process information; active learners learn best by doing things and are likely to say, "Let's try it out and see how it works." In contrast, reflective learners think about a topic first and process information through introspection. Second, the *visual/verbal* dimension refers to how sensory information is most effectively perceived. Visual learners remember best what they see, like pictures, diagrams, and flow charts, while verbal learners remember best what they hear and read, like words, written and spoken. Third, the *sensing/intuitive* learning dimension identifies the type of information the student preferentially perceives. Sensing

students like sight, sound, and physical sensation and are good with detail and memorizing facts. They also like a connection to the real world, whereas intuitive students like memories, ideas, and insight and prefer discovering possibilities and relationships. Finally, the *sequential/global* learning dimension shows how the student progresses toward understanding. Sequential students gain understanding in linear steps and follow logical stepwise paths in finding solutions. In contrast, global students are holistic in their approach to learning; they suddenly "get it" (Felder and Solomon 2000).

METHOD AND HYPOTHESES

The study was conducted in two stages. First, six focus groups were conducted—four with students studying on-campus and two with students studying off-campus. Second, the results from these groups and a literature review were used to assist in the development of the following hypotheses that are tested using the results from a quantitative survey.

Hypothesis 1: Marketing students are more likely to have visual, sensing, and sequential learning styles.

Our focus group findings suggested that marketing students are more likely to have visual, sensing, and sequential learning styles; therefore, we have included this hypothesis to formally test this exploratory finding.

Hypothesis 2: Learning styles of on-campus and off-campus students differ.

Given the different motivations that students have for enrolling either on-campus or off-campus, we hypothesize that the learning styles of these two groups of students will differ.

Hypothesis 3: Marketing students with different demographics have different learning styles.

It is possible that learning styles will change both with the age and gender of students. This will have important teaching implications for many courses where students tend to be of a certain age and gender. Hence, we included this hypothesis to test whether learning styles are a function of student demographics.

Hypothesis 4: Market segments differ across teaching modes.

As discussed above, it is important to consider the different combinations of learning styles held by the majority of students. Moreover, there is value in understanding how these segments change across teaching modes as this may influence teaching strategy.

Hypothesis 5: Marketing students prefer teaching styles that match their learning styles.

An important finding in the literature is that a congruence of teaching and learning styles produces better student outcomes. Accordingly, we include this hypothesis to provide a further test of this finding for marketing students.

Questionnaire

In the first part of the questionnaire, students answered the Solomon and Felder (1999) Learning Styles Index. As part of this index, students completed 44 discrete-choice questions that when calculated determined their learning style on four continua, as noted above.[1] In the latter part of the questionnaire, students were asked about their preferences for a variety of teaching methods using Likert-type and other ratings scales.

Data Analysis

Cross-tabs with chi-square tests were used to test Hypothesis 2 (learning styles differ across student cohorts) and Hypothesis 3 (marketing students with different demographics have different learning styles). For the fourth hypothesis (market segments differ across student cohorts), cluster analysis techniques were used to generate segments for both on-campus and off-campus student cohorts. Specifically, the clusters were generated using the raw values generated for each of the four Solomon and Felder (1999) learning constructs and Ward's hierarchical cluster analysis. The results were verified using the K-means approach and through validity checking using multinomial logit models. Independent samples *t*-tests were used for testing Hypothesis 5 (marketing students prefer teaching styles that match their learning styles).

Research Participants

The focus of this study is students studying marketing subjects either on-campus (face-to-face) or off-campus. Off-campus delivery in this instance involves the use of study notes (effectively lectures in written form plus prescribed readings); textbooks; electronic discussion forums and other Web-based supports; e-mail and telephone support; and voluntary, periodical, weekend schools. The students were from a university situated in regional New South Wales, Australia. All students were completing an undergraduate degree.

On-campus students were surveyed within class, using a nonprobabilistic sampling procedure. Marketing classes were selected on the basis of the willingness of professors to allow their students to participate; in practice, this meant that more than 80% of all on-campus marketing students were asked to participate in the survey. About 80% of the students in the marketing classes surveyed agreed to participate, leading to 174 usable responses. The same questionnaire was mailed to 445 off-campus students (randomly selected), from

TABLE 1
LEARNING STYLES CROSS TABULATED AGAINST LEARNING MODE (in percentages)

Learning Style	*On-Campus*	*Off-Campus*	χ^2	p *Value*
Action	34	20	8.91	(.02)**
Reflector	14	24	5.30	(.02)**
Neither	52	46		
Intuitive	14	10	1.84	(.18)
Sensate	39	53	7.58	(.00)***
Neither	47	37		
Visual	54	41	7.25	(.01)***
Verbal	3	13	13.92	(.00)***
Neither	43	46		
Global	6	6	0.02	(.89)
Sequential	28	29	0.02	(.89)
Neither	66	65		

**Significant at the 5% level. ***Significant at the 1% level.

TABLE 2
LEARNING STYLES CROSS TABULATED AGAINST GENDER (in percentages)

Learning Style	*Male*	*Female*	χ^2	p *Value*
Action	22.8	28.6	1.64	(.20)
Reflector	19.8	19.3	0.00	(.95)
Neither				
Intuitive	12.6	11.4	0.12	(.73)
Sensate	43.1	48.6	1.12	(.29)
Neither				
Visual	55.1	41.4	6.96	(.01)***
Verbal	3	13	11.65	(.00)***
Neither				
Global	4.2	8.1	2.38	(.12)
Sequential	32.9	24.3	3.44	(.06)*
Neither				

*Significant at the 10% level. ***Significant at the 1% level.

which 203 usable questionnaires were generated after a telephone reminder (response rate of 47%). The differential response rate raises the prospect of nonresponse bias in the off-campus sample. This would occur if nonrespondents were not randomly distributed. Tests conducted by comparing early and late respondents, however, indicated little evidence of nonresponse bias.

RESULTS

Hypothesis 1

The first hypothesis is that marketing students are more likely to have visual, sensing, and sequential learning styles. The results presented in Table 1 do indicate that a greater percentage of marketing students tend to be *sensate*, *visual*, and *sequential* learners across both on-campus and off-campus teaching models. While not reported in Table 1, these results are all significant at the 1% level. A striking aspect of these results is the relatively small proportion of *verbal* learners and, to a lesser extent, *intuitive* learners among this sample of marketing students. Furthermore, while not part of Hypothesis 1, it is interesting to note that on-campus students are more likely to be *active* rather than *reflective* learners, while for off-campus students, the reverse seems to be true.

Hypothesis 2

The second hypothesis was that the learning styles differ across off-campus and on-campus students. The results indicate the following (see Table 1):

- On-campus students tend to be visual and active in their learning styles, and significantly more so than distance students.
- Distance students tend to be sensate, reflective, and verbal in their learning styles, and significantly more so than on-campus students.

Thus, there is support for the second hypothesis that the learning styles of on-campus students are different from those of their counterparts who study at a distance.

TABLE 3
LEARNING STYLES CROSS TABULATED AGAINST AGE (in percentages)

Learning Style	*≤ 25 Years*	*> 25 Years*	χ^2	p *Value*
Action	30.9	20.5	1.64	(.02)**
Reflector	17.7	21.1	0.69	(.41)
Neither				
Intuitive	14.5	8.4	3.37	(.07)*
Sensate	41.4	51.8	4.16	(.04)**
Neither				
Visual	48.6	45.2	0.45	(.50)
Verbal	5.5	12	5.41	(.02)**
Neither				
Global	8.2	3.6	3.39	(.07)*
Sequential	27.3	29.5	0.24	(.63)
Neither				

*Significant at the 10% level. **Significant at the 5% level.

Hypothesis 3

The third hypothesis is that marketing students with different demographics have different learning styles. The results indicate the following (see Tables 2 and 3):

- Male students are significantly more visual and sequential in their learning than female students.
- Both male and female students are also strongly sensate and active, but there are no significant differences between them on these dimensions.

- Younger marketing students (younger than 25 years) are significantly more active, intuitive, and global learners than students older than 25 years.
- Older students (older than 25 years) are significantly more sensate and verbal learners than students younger than 25 years.
- There is no significant difference between younger and older students on the reflector, visual, and sequential dimensions.

Thus, there is support for the third hypothesis that marketing students with different demographics have different learning styles.

Hypothesis 4

The fourth hypothesis is that the market segments differ across teaching modes. As mentioned above, cluster analysis was used to segment both subsamples. Cross-tabulations between the clustering results using Wards Method and K-means indicated that 79.1% of on-campus students and 79.9% of off-campus students were placed in the same clusters using both methods, providing evidence of convergent validity. Multi- nomial logit regression also indicated that several socio- demographic variables were significant predictors of cluster membership. As shown in Table 4, gender and having a marketing major were significant regressors in the off-campus sample, while having an accounting major, management major, year of study, and previous grade were significant predictors for the on-campus sample. Overall, these results are supportive of the validity of the cluster analysis.

In both the off-campus and on-campus subsamples, three main segments were identified. These are shown in Table 5. The first segment in the off-campus sample is labeled "sensate-verbal-sequential" based on the ratings given for each of these constructs. This was one of the two largest segments and was the only "verbal" segment identified in the off-campus sample. Similarly, the first segment identified in the on-campus sample was the only "verbal" segment. However, this segment is somewhat different from that found in the off-campus sample. It is characterized by being moderately "reflective," and the mean value for "verbal" is lower than the off-campus sample (but comparatively higher than the other two segments in the on-campus sample). The remaining two segments in each sample have greater similarity. Segment 2 for both samples has high values for the "sensate" and "intuitive" constructs. For the on-campus sample, there is also a high value for the "active" construct. The remaining segment in both samples is characterized by having sensate-visual-sequential learners.

Furthermore, Table 5 shows the demographic characteristics of each segment. First, the larger value for year of study for Segment 2 for both distance and on-campus students suggests that their learning styles become more intuitive-visual the longer they study at the university. This in itself is somewhat counterintuitive; it would be expected that advanced students would have become more intuitive and more verbal, not more visual. However, it should also be borne in mind that this result could be confounded by other factors. For instance, students doing majors other than marketing make up a greater proportion of students in the earlier years. Second, membership of the segments is related to gender. Segment 1 (the verbal segments) has the greatest proportion of female students in both cohorts, while Segment 3 (sensate-visual-sequential) has the smallest proportion of female students in both cohorts. Third, there is a difference in marketing students between off-campus and on-campus students: more of the former are intuitive-visual, while more of the latter are sensate-visual-sequential. This is to be expected; distance students are more likely to be in the workforce in the world of ideas, of insight, and into discovering relationships between concepts. Fourth, differences between marketing and other students can be observed. Nonmarketing students majoring in business, accounting/finance, and management are less likely to be in Segment 2 for both samples.

Overall, the evidence from the cluster analysis provides limited support for Hypothesis 4. The results indicate that there is some similarity between student segments across cohorts, but subtle differences between the segments exist.

TABLE 4
MULTINOMIAL REGRESSION RESULTS

	Coefficient	*Off-Campus*	*On-Campus*
1v3	Constant	–0.312	–0.538
	Marketing major	1.013***	
	Gender	–0.278	
	Accounting major		–1.126*
	Management major		1.126*
	Grade achieved most often		0.542**
	Year of study		–0.006
2v3	Constant	0.173	0.008
	Marketing major	0.105	
	Gender	–0.935***	
	Accounting major		–0.660
	Management major		–0.005
	Grade achieved most often		0.466*
	Year of study		–0.510*

*Significant at 10% level. **Significant at 5% level. ***Significant at 1% level.

Hypothesis 5

The final hypothesis is that marketing students prefer teaching styles that match their learning styles. Table 6 (for off-campus students) shows that *active* learners have a more positive attitude toward the use of on-line resources and subject management than students with other learning styles.[2] Furthermore, *sensate* students generally have a more negative attitude to distance subject materials. This is not surprising—those students with an eye for detail would be more likely to find deficiencies with teaching resources. *Sensate* students also found the electronic discussion forums more useful than

TABLE 5
ATTITUDINAL AND SOCIODEMOGRAPHIC CHARACTERISTICS OF STUDENT SEGMENTS

	Off-Campus			*On-Campus*		
	Segment 1 Sensate-Verbal-Sequential	*Segment 2 Intuitive-Visual*	*Segment 3 Sensate-Visual-Sequential*	*Segment 1 Reflective-Verbal*	*Segment 2 Active-Intuitive-Visual*	*Segment 3 Sensate-Visual-Sequential*
Segment size (%)	37	24	39	31	30	39
Active/reflective	–0.58	0.06	–0.11	–1.73	4.96	1.54
Sensate/intuitive	5.95	–3.12	5.00	1.77	–2.03	2.18
Visual/verbal	–2.05	2.31	7.00	–0.19	5.85	4.32
Sequential/global	2.45	0.43	1.84	2.05	–1.00	1.80
Year of study	1.11	1.28	1.22	1.11	1.38	0.95
Prior interest	1.73	1.51	1.76	1.58	1.55	1.79
Foreign student (%)				5	6	10
Gender (% female)	75	63	52	58	47	38
Marketing (%)	32	41	27	30	33	38
Business (%)	29	32	39	40	10	50
Accounting/finance (%)	39	16	45	31	10	59
Management (%)	29	26	45	60	20	20
Other	58	8	35	33	45	21

NOTE: The values for management in the on-campus cohort are based on a small sample size and should be interpreted accordingly.

TABLE 6
PREFERENCES OF OFF-CAMPUS STUDENTS FOR TEACHING STYLES

Question	*Mean Value for Specified Learning Style*	*Mean Values for All Other Learners*	T *Statistic*	p *Value*
Active learners				
I would like the subject to be fully online	4.05	3.42	3.23	(.00)**
I prefer to submit assignments via the Internet	4	3.42	2.91	(.01)**
I am happy to enroll via the Internet	4.2	3.78	2.35	(.02)*
Sensate learners				
Off-campus materials were well structured	3.86	4.11	–2.55	(.01)**
The study notes were interesting to read	3.39	3.62	–1.94	(.05)*
I feel that residential/weekend school(s) were essential to my understanding	3.23	2.93	1.94	(.05)*
I have found the online forums useful	3.74	3.38	2.35	(.02)*
Visual learners				
I prefer to submit assignments via the Internet	3.78	3.37	2.30	(.02)*

*Significant at 5% level. **Significant at 1% level.
a. 1 = (*strongly disagree*), 5 = (*strongly agree*).

other students, possibly because they assist them to understand the details of a subject.

The results in Table 7 (for on-campus students) also demonstrate that marketing students prefer teaching styles that match their learning styles, providing further support for Hypothesis 4. In particular:

- *Active* and *visual* students have a more positive attitude toward group work, and *sensate* and *sequential* students have a more negative attitude.
- *Sequential* and *visual* students have a more negative attitude toward guest speakers.
- *Active* students have a more positive attitude toward student presentations, and *sensate* students have a more negative attitude.
- *Sensate* students have a more positive attitude toward lectures and a more negative attitude toward tutorials.

How do these results compare with the received literature (Felder and Solomon 2000)? Recommended teaching methods for *active* learners include discussion, problem-solving activities, group work, and cooperation when completing homework. Thus, our findings are in-line with the literature. However, the preference of this group for the use of online resources is a new finding (see Table 6).

For *sensate* students, it is recommended that clear facts and procedures be presented and examples be given of how facts and procedures operate in the "real" world. Our findings did not disagree with this—these students did have a propensity for detail. They liked lectures and weekend schools more

TABLE 7
PREFERENCES OF ON-CAMPUS STUDENTS FOR TEACHING STYLES

Question	*Mean Value for Specified Learning Style*	*Mean Values for All Other Learners*	T *Statistic*	p *Value*
Sequential learners				
Group work	3.49	3.99	–3.44	(.00)**
Guest speakers	3.64	3.97	–1.96	(.06)
Active learners				
Group work	3.55	2.85	3.67	(.00)**
Student presentations	4	3.49	3.49	(.00)**
The practical classes were relevant[a]	3.68	3.13	2.54	(.01)**
Sensate learners				
Case studies	3.7	3.95	–1.94	(.05)*
Group work	2.77	3.26	–2.56	(.01)**
Student presentations	3.45	3.79	–2.17	(.03)*
Lecture notes	4.51	4.25	2.18	(.03)*
Tutorial exercises were interesting[a]	3.34	3.66	–2.18	(.03)*
The lectures helped me understand this subject[a]	3.93	3.55	2.45	(.02)*
Visual learners				
Group work	3.27	2.83	2.42	(.02)*
Guest speakers	3.75	4.04	–2.06	(.04)*
Overhead presentations	4.44	4.09	2.58	(.01)**
Tutorials helped me understand this subject[a]	3.87	3.56	2.03	(.04)*

a. For this statement, a Likert-type scale was used (1 = *strongly disagree*, 5 = *strongly agree*); a ratings scale was used for all other teaching techniques (1 = *like a lot*, 5 = *don't like*).
* Significant at 5% level. ** Significant at 1% level.

than other students and also valued online forums more highly. What was interesting was that they found a lot of things more problematic than other students, such as tutorials, off-campus materials, group work, case studies, and student presentations. This group appears to be more difficult than others to cater for, possibly because of a dislike for uncertainty and a preference for clear details.

For *visual* students, the recommendation in the literature is that diagrams, sketches, photographs, flowcharts, videos, experiments, and other tangible demonstrations be used wherever possible. In line with these recommendations, *visual* students were found to prefer group work and the use of overheads, both of which demonstrate concepts visually. Of interest is a relative dislike for guest speakers, possibly because of a lack of use of visual aids.

Finally, for *sequential* students, it is recommended that course content and sequence be outlined often and explanation be given for where a topic fits into a subject at the start and finish of a lecture. It is important for these students to see a logical progression in what they are learning. The only unique preference found for these students was a dislike for group work and guest speakers. This may be because of the lack of structure sometimes found in both of these activities. For group work, the steps in learning may be less clear than, say, with a standard assignment. The contribution of guest speakers to learning may also be unclear to these students who place a greater emphasis on learning in steps rather than on getting an insight into a topic that may be somewhat of a tangent.

DISCUSSION AND IMPLICATIONS FOR TEACHING PRACTICE AND FURTHER RESEARCH

Understanding students' learning styles has been a concern to many educators' intent on understanding their students in order to developing a more effective teaching strategy. Thus, one of the initial goals of this study was to identify marketing students' learning styles. The results from this project showed that marketing students are more likely to have *sensate*, *visual*, and *sequential* learning styles. Furthermore, on-campus students are more likely to be *active* learners, while off-campus students are more likely to be *reflective* learners. Marketing students are particularly unlikely to have *verbal* learning styles, especially male students. Also, few marketing students have an *intuitive* learning style.

The sorts of learning styles prevalent among marketing students suggests that certain teaching strategies may be more applicable to these students. The analysis indicated the importance of visual stimuli to this group (e.g., demonstrations, pictures, diagrams). For *sequential* students, it is important to demonstrate the logical flow of subject material. For *active* students, it is useful to conduct group work and real-world projects. However, it is important to not simply cater to students' learning styles—students need to be devel-

TABLE 8
MATCHING LEARNING STYLES, TEACHING STRATEGIES, AND JOB POTENTIAL OF MARKETING STUDENTS

Segment	*Description*	*Teaching Strategies*
1. Reflective-verbal	Reflective learners Think things through first. Prefer working alone, not team players.	Reflective learners Ask students to think of possible questions or applications. Ask students to write short summaries of material in their own words. To learn other skills, get students to work in teams.
	Verbal learners Get more out of words—written and spoken explanations.	Verbal learners Write summaries of course materials. Get students to present their work so those verbal learners can hear their classmates' explanations. To learn other skills, get students to express their explanations visually.
2. Active-intuitive-visual	Active learners Tend to retain and understand information best by doing something with it, such as discussing or applying it or explaining it to others. Tend to like group work.	Active learners Get students to study in a group in which the members take turns to explain different topics. To learn other skills, get students to do projects alone.
	Intuitive learners Often prefer discovering possibilities and relationships. Like innovation and dislike repetition. Are often more comfortable with abstractions and math formulations. Tend to work faster and to be more innovative. Don't like a lot of memorization and routine calculations.	Intuitive learners Be sure to give interpretations or theories that link the facts. To learn other skills, get students to do repetitive and routine projects.
	Visual learners Remember best what they see—pictures, diagrams, flowcharts, time lines, films, and demonstrations.	Visual learners As most people are visual learners, have materials displayed in diagrams, schematics, photographs, flowcharts, videotapes, CD-ROM. To learn other skills, get students to do repetitive and routine projects.
Sensate-visual-sequential	Sensate learners Tend to like learning facts. Like solving problems by well-established methods and dislike complications and surprises. Tend to be patient with details and good at memorizing facts. Tend to be more practical and careful. Don't like courses that have no apparent connection to the real world.	Sensate learners Show how information connects to the real world. Provide specific examples of concepts and procedures. To learn other skills, get students to do a project that requires discovering theoretical possibilities and relationships.
	Sequential learners Tend to gain understanding in linear steps, with each step following logically from the previous one. Tend to follow logical stepwise paths in finding solutions.	Sequential learners Do not jump from topic to topic or skip steps. Put the lecture material in logical order.
Sensate-verbal-sequential	Descriptions as above.	Descriptions as above.

SOURCE: Adapted from Felder and Solomon (2000).

oped in areas of weakness. The lack of *verbal* learning styles indicates a need to include assignments where students are required to practice written and verbal communication. The lack of *intuitive* learning styles, especially in the accounting, finance, and business studies disciplines, suggests a need to foster creative and lateral thinking.

Much of the research in the area of learning styles has focused simply on the identification of learning styles. Once this is done, the typical recommendation is to develop "strategies . . . that appeal to a range of learning styles" (Felder 1996, p. 6). One of the reasons for this sort of strategy development is that the focus has been on identifying which learning styles students predominantly have. An alternative approach has been demonstrated in this article: that of determining the main "segments" within the student population. Thus, the focus shifts from just identifying which styles are present in the student population to determining which combinations of styles are prevalent.

Furthermore, the analysis indicated that there were three main segments in both the off-campus and on-campus samples. Recognizing these allows educators to better target educational strategies to (1) match teaching and learning styles and (2) develop potential areas of weakness in each segment. As shown in Table 8, it is possible to identify the main learning preferences of each segment, and their likely weaknesses, and develop more tailored teaching strategies. In brief, instead of the "mass-marketing" approach often recommended, we suggest a more targeted approach.

The education literature asserts that where teaching styles are compatible with student learning styles, students have a more positive attitude toward their subjects (Felder and Silverman 1988). We found that in the innovative off-campus mode, students are more likely to be *sensate* and *visual* and to a lesser extent *reflective* and *sequential* learners. Indeed, the largest segment within the off-campus sample is the sensate-visual-sequential learners. As such, they prefer lectures, weekend schools, and online forums. That is, they prefer traditional modes of learning and find a lot of aspects of off-campus learning more problematic than other off-campus students, such as the use of study notes and case studies. For them, teaching and learning styles are in conflict, and our finding confirms that part of the literature that asserts that matching teaching and learning styles is educationally important (Felder 1993, 1996; Schroeder 1993). This implies that as educators, there is a need to transform the off-campus learning environment into a more hybrid mode of learning to accommodate *sensate* and *visual* students' need for sight, sound, and physical sensation and connection to the real world.

Even more so than off-campus students, on-campus students are *visual* and, to a lesser extent, *active* learners. Thus, demonstrations, pictures, diagrams, sketches, photographs, flowcharts, videos, experiments, overheads, and other tangible demonstrations should be used whenever possible. Similarly, problem-solving activities involving group work should be encouraged. Many of these teaching aids are commonly used in on-campus marketing subjects. That is, teaching and learning styles are generally not incongruent. However, as argued above, there is still a need to target teaching practices according to the strengths and weaknesses of each of the segments within the student population.

Further research would be needed before it could be concluded that our findings regarding the prevalence of learning styles and segments that exist across different cohorts are generalizable. However, while the results of our study may not yet be generalizable to all marketing courses, the differences and similarities identified between on-campus and off-campus students is such that marketing educators should be alert to the potential learning challenges that this research poses for them.

NOTES

1. The strength of preference that a student has for a particular learning style construct (e.g., active-reflective, visual-verbal, etc) can be represented by their value on a 23-point scale ($-11, \ldots, +11$). A value of greater than +4 or less than –4 indicates that a student has a preference for a learning style on one of the ends of the construct. Hence, a value of greater than +4 on the active-reflective construct indicates that a student is an active learner.

2. This can be seen by comparing the mean value for active learners (4.05) with the mean value for nonactive learners (3.42), which is statistically different at the 1% level.

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