BUSINESS EDUCATION STUDENTS' PERFERRED LEARNING STYLES

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ABSTRACT

"Knowing the kinds of learning experiences that students most value may help instructors develop alternative course structures that provide a better fit between their instructional goals and the learning style preferences of their students" (Canfield, 1992, p. 1). The Canfield Learning Styles Inventory (LSI) was administered to 212 business education students at eight high schools in a large Southeastern state. The most preferred learning style was Direct Experience, indicating a clear preference for hands-on learning; the least preferred was Reading, learning activities requiring reading and textbook assignments.

INTRODUCTION

"Student outcomes are the bottom line of a school program. The demand for higher standards, so prevalent today, may result in raising the bar higher but not in helping students vault it. The key to helping more students achieve in our schools would seem to involve offering them different ways to reach common goals" (Jenkins, 1988, p. 41). Early in this millennium education reform has again become a focal point for politicians and educators. And, as in years past, it appears to focus primarily on English and math skills. One could hardly argue their value and merit. However, to simply require more English and math courses without any kind of student diagnosis would be analogous to telling our students they will all get new shoes; and, since a size 8 is common, everyone will get size 8 shoes! Of course they would all get the same thing, but it clearly would not—literally—fit their needs.

It is no different with student learning. For students to reach higher standards and learn more effectively, learning situations that are best for students need to be developed and encouraged. In other words, individual characteristics of students emerge in their school behavior which provide insight as to how their minds work and, thus, how they learn. Therefore, "knowing the kinds of learning experiences that students most value may help instructors develop alternative course structures that provide a better fit between their instructional goals and the learning style preferences of their students" (Canfield, 1992, p. 1).

RELATED LITERATURE

Every organ in our bodies has a natural function. The brain's function is to learn, something for which it has an inexhaustible potential. Caine and Caine (1994) state, "Each healthy human brain, irrespective of a person's age, sex, nationality, or cultural background, comes equipped with a set of exceptional features:

• the ability to detect patterns and to make approximations,

• a phenomenal capacity for various types of memory,

• the ability to self-correct and learn from experience by way of analysis of external data and self-reflection, and

• an inexhaustible capacity to create.

If, then, everyone has these capacities, why are we struggling in our ability to educate?" (p. 3). Caine and Caine, who write about brain-based learning, pose it is because we do not understand the complex ways in which the brain learns. Another reason may be that teaching styles are not well matched with preferred student learning styles.

In fact, "People are born to learn," (Leaver, 1997, p. 63). Why do students fail to learn? Leaver suggested, "Most school programs are designed in ways that nourish one group of learners while placing another group at risk of starvation. Specifically, there are four groups of learners who are typically at risk:

1. Any student whose learning style does not match the teacher's learning style, especially if the teacher is inflexible in style or unaware of style differences.
2. Any student whose learning style does not match the orientation of the curriculum.
3. Any student who does not match the class profile (the set of predominant learning styles among any given group of students).
4. Any student who is misplaced in the educational system from a mismatch between the student's learning style and the learning style of the placement test" (p. 63).

Leaver (1997) posits that teachers in this country have teaching styles concomitant with Western norms. Thus it is reasonable that those students with a non-Western orientation, especially foreign students, may be at greater risk. Leaver stated "that students with non-Western learning styles are more highly represented among the gifted dropouts, underachievers, and special education students" (p. 63). While clearly there are no styles that are "good" or "bad," teachers often consider those students whose learning styles match their teaching styles to be "good" students and those who don't, "bad" or inferior students.

Leaver (1997) also asked the question, "Why should teachers accommodate students and not vice versa?" (p. 95). Most of Leaver's response centers on research supporting the concept that the more closely matched learning styles are with instructional styles, student achievement increases. This is her best response, "Because all our students have a right to equal opportunity for school success" (p. 96). The key word is "equal," not "the same." If students are provided equal opportunities, de facto their preferred learning styles will not only be determined, valued, and respected, but their teachers will develop instructional strategies that more closely match their learning preference.

Ebeling (2000) stated what is common knowledge: public schools are not designed for individualized or one-on-one instruction. Whole classes are taught, not individuals. Sometimes small group work is assigned, as is cooperative learning. Regardless of these variations, typically there is always someone who doesn't learn. What is a teacher to do? Ebeling suggested teachers have two choices: one–come back the next day and teach the same thing again, hoping **everyone** gets it this time; or two–modify teaching styles with the hope of more students will learn. Ebeling suggested four steps to follow to use in adapting a lesson so more students will learn. The steps are:

1. Plan your lesson for the whole class" (p. 247). Literally this means writing out a lesson plan, stating clearly goals and expectations for the whole class.

2. "Think of your plan in terms of specific learners" (p. 248). This requires teachers know their students as they must be able to estimate who in the class might not "get it." If even one student's name is on the "not get it" list, some adaptation in the lesson is required.

3. "Analyze your lesson and one or more specific learners from nine different standpoints" (p. 248). The nine standpoints Ebeling provides are size, time, complexity, participation, environment, input, output, support, and goals. Clearly adaptations in all nine points would not be needed every time; however, the point is these are routine, specific areas which may require adjustments in what the teacher does that may result in increased student achievement.

4. "Observe how your adaptation works when you teach" (p. 248). Reflection on changes will be the only way a teacher will know if the changes have resulted in benefits to students.

Do you still teach the whole class? Yes, but you do so with adaptations for individual student preferences.

A paucity of research exists in business education in the area of learning and instructional preferences. Ladd (1995) found the business education teachers participating in a Tennessee research study did not teach the way they preferred to learn. However, Stitt-Gohdes, Crews, and McCannon (1999), surveying NABTE faculty and high school business education teachers, found these educators do prefer to teach as they learn. While these two studies provide important information regarding learning preferences for selected groups of business education teachers, additional work is needed to extend the data garnered to date. Research involving secondary business education teachers and students is important for several reasons. First, business education students are taught in computer classrooms and/or traditional classrooms. Learning and instructional styles may vary depending on the physical environment in which learning takes place. Second, typically students with varying academic interests and abilities enroll in business education classes, which are the most frequently selected classes under the career and technical education umbrella. It is reasonable to find a variety of learning and instructional preferences in the students and teachers. Finally, today business education teachers may enter the classroom via traditional preparation programs or alternate certification programs. All these factors have the potential to influence both instruction and learning, meriting scholarly inquiry.

While any number of inventories exist which attempt to identify learning preferences, they all approach the task from different perspectives. The Embedded Figures Test (EFT) attempts to measure field independence/dependence (Bonham, 1988). A weakness of this instrument is it measures only one ability with the opposite ability only implied. The Kolb Learning Style

Inventory consists of only 12 items, resulting in the criticism of brevity and reliability (Bonham). Options for these items are also "presented in the same order, increasing possibility of response set" (Bonham, p. 14). A criticism of the Canfield LSI is its forced-choice nature of having to rank alternatives from most preferred to least preferred.

A common thread of self-reporting is evidenced throughout these inventories. "Their accuracy is dependent on subjects knowing themselves and wanting to reveal that knowledge" (Bonham, 1988, p. 12). Therein is perhaps both the good news and the bad news. The good news is that, if administered, learners at least have a voice in indicating their learning preferences. The bad news is how well students, especially high school students, really know themselves and are able to discern inherent learning preferences from acquired learning preferences. For just as people who are short learn to use ladders to compensate for their shortness, learners, too, sometimes learn to compensate for their challenges in the learning process.

As classroom demographics continue to change, this issue of providing the optimum learning environment for all students becomes an even greater challenge. Today in some parts of the United States, minorities comprise a majority of the student population. It is projected that early in this century the majority of growth in the labor force will be made up of women and minorities (Stitt-Gohdes, 1996).

Thus, the problem exists of wanting to provide the optimum learning environment while recognizing the myriad of individual learning preferences in the classroom every day.

PURPOSE OF THE STUDY

Research on learning establishes a variety of factors that affect learning: prior knowledge, context, social factors, and environment. Clearly if these are not considered in any way, there is no reason to believe most students will achieve, much less excel, in the classroom and beyond. Therefore, the purpose of this study was to determine the preferred learning styles of a selected group of high school business education students. The Canfield LSI was administered to 212 business education students at eight high schools in a large Southeastern state.

RESEARCH METHOD

POPULATION

The high school business education students who participated in this study were selected as a result of their teachers having participated in the first step of a three-part research project. The first step involved a determination of a randomly selected group of high school business education teachers' preferred learning and instructional styles. The second step determined whether a match existed between eight high school business education teachers' preferred instructional styles and their students' preferred learning styles. This third step involved a closer examination of the students' preferred learning styles with an eye toward recommendations for addressing varying learning styles in the classroom.

Therefore, for the present study, those high school business education teachers who participated in step two were invited to administer the Canfield LSI to two groups of their business education students: one in a computer-based class and one in a traditional, non-computer-based class. If a teacher taught only computer-based classes, only one group of his/her students participated. The original intent was to determine if statistically significant differences existed in learning styles of students in computer-based classes as compared with non-computer-based classes. As

no statistically significant differences surfaced, the group data were analyzed in the aggregate. Eight of the original 25 teachers agreed to participate, resulting in a student *n* of 212. The LSI was administered by the researchers to classes at the coordinated convenience of the teacher and researchers. Once all the inventories were administered, a learning profile and typology was determined for students.

INSTRUMENTATION

The Canfield LSI (Canfield, 1992) was selected for two reasons: (a) because of its ability to allow learners "to describe what features of their educational experiences they most prefer" (Canfield, p. 1) and (b) because the original study replicated Ladd's (1995) research which used the Canfield Learning and Instructional Styles Inventories. "The term 'learning style' refers to the affective component of educational experience, which motivates a student to choose, attend to, and perform well in a course . . . ." (Canfield, p. 1).

This inventory also assesses the individual's learning preferences with regard to four conditions for learning, areas of interest, modes of learning, and expectation for course grades. These four conditions were established by the developers of the Canfield LSI. There are a total of 30 items on the LSI which each participant is asked to rank from "Most Preferred" (ranked 1) to "Least Preferred" (ranked 4). The raw scores per item may range from 6 to 24, with a lower number indicating a higher preference. The split-half reliability for the LSI ranges from .96 to .99 first half versus second half, and .96 to .99 on odd versus even numbered items. It is important to understand the LSI is not a test; there are no right or wrong answers. Its purpose is to describe a student's preferred learning style.

Because the LSI is not a test in the usual sense of having right or wrong answers, testing the validity of the LSI is a more involved procedure. Since the early 1980s "a number of researchers have reported evidence of (a) the power of the LSI to discriminate meaningful group differences in learning style preference, and (b) the value of matching instructional methods to characteristic individual student preferences" (Canfield, 1992, p. 38). Three studies (Irby, 1977; Pettigrew & Heikkinen, 1985; Robertson, 1978) reported that, indeed, learning and instructional style congruence does result in improved achievement and greater satisfaction with the overall learning experience.

A demographic data sheet was also used to determine gender, grade in school, and diploma sought (academic or career/technical or both).

FINDINGS

Two hundred twelve students participated in this study. Boys comprised 60.7% (n = 128), and girls comprised 39.3% (n = 83) of the study participants. One person chose not to respond to this question. They were relatively evenly divided between grades 9 (23.7%), 10 (23.7%), 11 (19.9%), and 12 (32.7%). The students came from rural (n = 110, 51.9%), suburban (n = 71, 33.4%), and urban settings (n = 31, 14.6%). One hundred (47.4%) of the students sought the academic diploma, 66 (31.3%) sought the career/technical diploma, 39 (18.5%) sought both diplomas, and 6 (2.8%) chose not to respond to the question.

The first step in making meaning of the student scores on the LSI was to determine rankings in the four LSI categories: Conditions for Learning, Area of Interest, Mode of Learning, and Expectation for Course Grade. In interpreting this data it is important to remember the

forced-choice format of the LSI where a high ranking of one scale requires a low ranking for remaining scales. Mean scores for students for the 20 scales in this inventory are presented in Table 1.

Table 1

Mean for Students' Learning Styles and Teachers' Instructional Styles

Scales	Student Mean	Teacher Mean
Condition for Learning		
Peer	14.25	13.25
Organization	13.80	7.88
Goal Setting	15.01	15.13
Competition	17.53	13.75
Instructor	12.63	12.50
Detail	14.19	9.50
Independence	16.54	16.38
Authority	17.30	11.63
Area of Interest		
Numeric	16.31	13.75
Qualitative	15.32	11.13
Inanimate	15.35	12.13
People	13.63	13.00
Mode of Learning		
Listening/Lecture	15.66	15.25
Reading	18.78	14.13
Iconic	13.39	9.88
Direct Experience	12.79	10.75
Expectation for Course Grade		
A	14.22	8.50
B	10.48	10.00
C	14.20	12.88
D	21.73	18.63

In the first category, Conditions for Learning which refers to "the dynamics of the situation in which learning occurs" (Canfield, 1992, p. 19), these students preferred **Instructor** (m= 12.63). This indicates a preference for a learning situation where the relationship between instructor and learner is warm and personal. These students prefer a less formal relationship and value non-job/class-related conversation. The least preferred scale in this category was **Competition** (m = 17.53), indicating these students prefer not having their work and performance compared with fellow classmates. These students also would not like being called on in class to answer a question.

The second category, Area of Interest, includes the course subject matter. The students in this study preferred **People** (m = 13.63). This scale describes a learner who prefers to work with others. People with this preference focus more on the people side of a job rather than the task side. However, it is important to understand that simply because this implies a preference for

working with people it is not an indicator of an ability or skill to do so. The least preferred scale in this category was **Numeric** (m = 16.31). The students in the present study do not prefer learning activities involving numbers and their manipulation.

The third category, Mode of Learning, "refers to the basic sensory and cognitive modality in which new information may be acquired" (Canfield, 1992, p. 24). These students preferred **Direct Experience** (m = 12.79), indicating a clear preference for hands-on activities. Contextualizing activities for these students brings real meaning to learning. Activities might include laboratory work, equipment use, or field experiences/internships. The least preferred scale was **Reading** (m = 18.78), clearly the opposite of Direct Experience, indicating a preference for learning via reading and textbook assignments.

The fourth category, Expectation for Course Grade, is a representation of the grade the student expects to earn in the particular learning situation. The clear preference for these students was a grade of "B" (m = 10.48), with a least preference for a grade of "D" (m = 21.73). This indicates these students expect to perform at an above-average level.

Once the scores for the scales have been computed, they are plotted on a profile form included in the LSI. This profile form provides T-scores from >73 to <27 on the vertical axis and the scales on the top horizontal axis. In the column under each scale, is the possible range of scores for the scales. The raw score is circled. The corresponding T-scores for the scales of Organization, Qualitative, Readings, Direct Experience, Inanimate, and Iconic are used to derive X. The corresponding T-scores for the scales of Peer, Instructor, Goal Setting, and Independence are used to derive Y. Then X and Y are plotted on the learner typology to determine the learner type. The typology consists of the following nine preferences: social/applied, social, social/conceptual, applied, neutral, conceptual, independent/applied, independent, and independent/conceptual. The aggregate typology, representing both students and teachers, is presented in Table 2. The use of the matrix rather than tabular format aids the reader in interpreting the extent of match or mismatch between student and teacher. The Canfield Learning Styles Inventory Manual (Canfield, 1992) states that by moving horizontally or vertically from block to block—not diagonally—from the instructor preference to the student majority preference, one is able to determine the extent of match or mismatch, with zero and one reflecting a match and four reflecting a substantial mismatch.

The "social" preference was indicated by 40 (18.9%) of the students, closely followed by "social/applied" (n = 33, 15.6%) and "independent/conceptual" (n = 30, 14.2%). Students with a preference for the "social" type would also have had high scores on Peer and Instructor scales. As reported earlier, the preferred scale under Conditions for Learning was Instructor. These students also prefer situations where they are able to interact with a variety of people. The social/applied type prefers "activities closely related to real-world experiences and will likely feel less comfortable with solitary or self-directed activity" (Canfield, 1992, p. 27). The independent/conceptual types "prefer to work alone toward individual goals and on highly organized language-oriented and conceptually organized materials" (Canfield, p. 27). The least preferred type was "applied" with 15 students (7.1%). This type prefers learning situations clearly connected to real-world activities. The Canfield Learning Styles Inventory Manual (Canfield, 1992) states the learner with this preference would score high on the direct experience, inanimate, and iconic scales and low on the organization, qualitative, and reading scales. This is in conflict with the aggregate student scale means as presented in Table 1 and discussed earlier.

Table 2

Aggregate Data: Students' Learning Typologies and Teachers' Instructional Typologies

Social/Applied	Social	Social/Conceptual
Social/Applied 33 Students = 15.6% 1 Teacher = 12.5%	**Social** 40 Students = 18.9% 3 Teachers = 37.5%	**Social/Conceptual** 17 Students = 8% 0 Teachers
Applied 15 Students = 7.1% 0 Teachers	**Neutral** 16 Students = 7.5% 1 Teacher = 12.5%	**Conceptual** 20 Students = 9.4% 1Teacher = 12.5%
Independent/Applied 24 Students = 11.3% 1 Teacher = 12.5%	**Independent** 17 Students - 8% 0 Teachers	**Independent/Conceptual** 30 Students = 14.2% 1 Teacher = 12.5%

As discussed later in the paper, this reveals the value in analyzing the data from the individual schools as opposed to only the aggregate data.

Of the eight participating teachers, three (37.5%) preferred the "social" type; none preferred the "applied" "independent," or "social/conceptual." The Canfield Learning Styles Inventory Manual states the "social" choice "prefers extensive opportunities to interact with peers and instructors; has no strong preference for either applied or conceptual approaches; instruction involving small groups and teamwork will create the closest match" (Canfield, 1992, p. 14).

While the aggregate data makes some meaning of the preferred learning and instructional typologies of these students and their teachers, a more meaningful picture can be gleaned from an observation of the eight individual sets of students and their own teachers. These data are presented in Tables 3 through 10.

Table 3

School A Learning Typologies, n = 31 students

Social/Applied	Social	Social/Conceptual
Social/Applied 0 Students	**Social** 6 Students = 19.35%	**Social/Conceptual** 2 Students = 6.45%
Applied 5 Students = 16.13%	**Neutral** 4 Students = 12.9% Teacher	**Conceptual** 3 Students = 9.68%
Independent/Applied 1 Student = 3.23%	**Independent** 3 Students - 9.68%	**Independent/Conceptual** 7 Students = 22.58%

Table 4

School B Learning Typologies, n = 13 students

Social/Applied 5 Students = 38.46% Teacher	Social 3 Students = 23.08%	Social/Conceptual 1 Student = 7.69%
Applied 1 Student = 7.69%	Neutral 0 Students	Conceptual 2 Students = 15.39%
Independent/Applied 1 Student = 7.69%	Independent 0 Students	Independent/Conceptual 0 Students

Table 5

School C Learning Typologies, n = 25 students

Social/Applied 2 Students = 8%	Social 7 Students = 28%	Social/Conceptual 3 Students = 12%
Applied 0 Students	Neutral 2 students = 8%	Conceptual 2 Students = 8% Teacher
Independent/Applied 3 Students = 12%	Independent 3 Students = 12%	Independent/Conceptual 3 Students = 12%

Table 6

School D Learning Typologies, n = 24 students

Social/Applied 5 Students = 20.83%	Social 7 Students = 29.17% Teacher	Social/Conceptual 2 Students = 8.33%
Applied 0 Students	Neutral 2 Students = 8.33%	Conceptual 1 Student = 4.17%
Independent/Applied 5 Students = 20.83%	Independent 1 Student = 4.17%	Independent/Conceptual 1 Student = 4.17%

Table 7

Social/Applied 5 Students = 12.82%	Social 4 Students = 10.26%	Social/Conceptual 2 Students = 5.13%
Applied 4 Students = 10.26%	Neutral 3 Students = 7.69%	Conceptual 6 Students = 15.38%
Independent/Applied 2 Students = 5.13%	Independent 4 Students = 10.26%	Independent/Conceptual 9 Students = 23.07% Teacher

Table 8

School F Learning Typologies, n = 24 students

Social/Applied 5 Students = 20.83%	Social 3 Students = 12.5% Teacher	Social/Conceptual 3 Students - 12.5%
Applied 1 Student = 4.17%	Neutral 3 Students = 12.5%	Conceptual 2 Students = 8.33%
Independent/Applied 3 Students = 12.5%	Independent 1 Student = 4.17%	Independent/Conceptual 3 Students = 12.5%

Table 9

School G Learning Typologies, n = 33 students

Social/Applied 4 Students = 12.12%	Social 6 Students = 18.18% Teacher	Social/Conceptual 4 Students = 12.12%
Applied 3 Students = 9.09%	Neutral 1 Student = 3.03%	Conceptual 3 Students = 9.09%
Independent/Applied 4 Students = 12.12%	Independent 5 Students = 15.15%	Independent/Conceptual 3 Students = 9.09%

Table 10

Social/Applied	Social	Social/Conceptual
7 Students = 30.43%	4 Students = 17.39%	0 Students
Applied	**Neutral**	**Conceptual**
1 Student = 4.35%	1 Student = 4.35%	1 Student = 4.35%
Independent/Applied	**Independent**	**Independent/Conceptual**
5 Students = 21.74%	0 Students	4 Students = 17.39%
Teacher		

As shown in Tables 4, 6, 7, and 9, there is a match between the majority of students' preferred learning style and teacher preferred instructional style. However, in two of the remaining four schools, students and teachers are only one block apart; and in the other two, students and teachers are only two blocks apart, indicating an adequate match or slight mismatch. The point being the preferred instructional strategies of the majority of the teachers in the present study seem, in the main, to fit their students' preferred learning styles.

CONCLUSIONS AND DISCUSSION

The following draws conclusions based on the results of the study and provides a discussion of the ramifications for business education students and their teachers.

CONCLUSIONS

Clearly these high school business education students prefer personalized learning where the instructor is well acquainted with the whole student, where the student is actively involved with others, and where the student is participating in the learning activities. They also have good expectations of the grade they will earn in the class in which they are enrolled. Conversely, these students prefer not to have their work compared with others publicly, do not favor learning activities involving mathematics, and prefer not to have to read as a primary means of learning.

A stereotypical evaluation might say this is a perfect description of the classic career and technical education student, more brawn than brain. However, more students were working on the academic diploma (n = 100, 47.4%) alone and on **both** the academic and career/technical diploma (n = 39, 18.5%) than the career/technical diploma alone (n = 66, 31.3%). It may, however, be reflective of other issues. One such issue is the forced-choice nature of the survey instrument: a high ranking of one item requires a low ranking of another item. Evidence of this surfaces in the mode of instruction category with the students preferring direct experience which is directly opposite of reading. It may also be reflective of a society that has evolved into a "point and click" mentality. In many situations reading is no longer a required activity; we frequently can point to an icon and get what we want. Servers in fast-food restaurants have no need to understand menu items or to know how to count change back—just push the button with the right picture and the cash register does the rest.

DISCUSSION

Aggregate scores plotted on the typology show the majority of these students (n = 98) cluster around applied and independent learning preferences, with least preference for a social learning environment. This provides the most evidence that these teachers do not teach the way their students prefer to learn. What causes this to be so? A number of questions emerge: Have students not been required to read? Have students not been required to work in groups, thereby developing both teamwork and social skills? Has the pressure for individual success— the "me"— totally overcome the importance for group success—the "we"? Have teachers become one-course servers—learn my way or struggle and probably not learn your way?

A look at four general principles of learning discussed in the "Learning About Learning" video produced by the Association for Supervision and Curriculum Development (ASCD) (1995) may provide insight. The contributors to this video, Gaea Leinhardt, Lauren Resnic, and David Perkins, propose the following:

1. New learning is shaped by the learner's **prior knowledge**.
2. Much learning occurs through **social interaction**.
3. Learning is closely tied to **particular situations**.
4. Successful learning involves the use of **numerous strategies**.

It might be folly to question any of these; however, how many teachers see the value and eagerly embrace these principles and their concomitant ramifications? Again questions arise: How do I know my students' prior knowledge? How do I know if my students are talking that they're really on task and not just visiting or, worse yet, cheating? There are so many business situations where what my students learn can be applied—how do I tie what they learn to particular situations? And how many different ways do you want me to teach—there are only so many minutes in a class period?

In fact, suggested instructional strategies in the manual for the Canfield Learning Styles Inventory (Canfield, 1992) by typology reflect several of the aforementioned principles of learning. For the three most prevalent student typologies (applied, independent/applied, and independent) prior knowledge, contextualized learning, and numerous strategies are clearly evident. For example, the applied typology might include practicum with supervision, problem-solving exercises, field observations, and/or mechanical simulations. The independent/applied typology might include problem finding/solving, field experiments, model building. And the independent typology might include analysis of procedures or techniques and/or journaling.

What specifically does this mean for secondary business education teachers? Two responses appear appropriate. First, secondary business education teachers need to determine their instructional preferences and their students' learning preferences. Second, efforts need to be made to incorporate a variety of instructional strategies as appropriate to both meet student needs and instructional goals. As an example, the Canfield Learning Styles Inventory (Canfield, 1992) manual provides several matrices which match mode of learning preferences with conditions for learning preferences. In conditions for learning the students in the study preferred instructor and exhibited a preference for direct experience in mode of learning. The manual suggests laboratory/field experiments, visits, supervised practice, and coaching by instructor as appropriate instructional techniques. Actual courses and activities in the business education classroom might include cooperative business education classes, computer classes, youth apprenticeship, and other school-to-work opportunities.

What on the surface seems so simple, to match the learner's style with an appropriate instructional strategy, is not simple at all, primarily because an individual's learning style is not typically singular but rather plural! Dixon (1985) stated "Preference does not imply that these ways are the only or perhaps even the best ways for the individual to learn a given subject matter. They are, however, the styles with which the individual has the greatest experience and therefore represent the individual's learning strengths" (p. 16). She suggested too, perhaps the wrong question is being asked. Rather than inquiring about how learning style information can be used to improve instruction; perhaps one should inquire as to how learning style information can be used to improve learning. As it is within the instructor's power to effect change in the classroom, Dixon suggested these five responsibilities: "(a) helping individuals understand themselves as learners, (b) encouraging individuals to expand their learning styles, (c) using a variety of instructional approaches, (d) creating an environment in which diversity can thrive, and (e) creating a climate in which collaboration exists" (p. 16).

RECOMMENDATIONS

Based on the related literature and data gathered, the following are recommended for practice and research:

1. Business education teachers should acquaint themselves with current literature regarding instructional styles and their effect on student learning/achievement.
2. Business education teachers should help their students understand themselves as learners in the classroom.
3. Business education teachers should attempt to determine their instructional preferences and their students' learning preferences.
4. Business education teachers should incorporate a variety of instructional strategies, which include contextualized, applied learning opportunities.
5. Teacher preparation programs should include learning theory and learning style preference research in instructional strategies classes.
6. The present study should be replicated with a larger, more diverse student population.

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