Is Study Design Right for the Question?

I would like to address a methodological problem in the design of Cahill and Madigan's study, "The Influence of Curriculum Format on Learning Preference and Learning Style" [AJOT 38(10):683-686], and make some comments related to Kolb's Learning Style Inventory (LSI) (1), which I also used in research, both in Israel and the United States (2).

The authors attempted to investigate the influence of a student-centered curriculum format on learning preference and style, between the beginning and end of one year of study in occupational therapy. The authors report: "No statistically significant differences between pre- and posttest scores were found on any of the 10 dimensions of the two instruments, LPI and LSI" (p 685), which were used as measures for learning preference and style. Thus, they conclude: "Exposure to the various types of instructional and learning modes apparently did not change the way the students learn or their opinions of their preferred modes of learning." (p 685)

The authors used a one-group pretest-posttest research design in which almost all sources of internal and external validity are jeopardized (3). Therefore, they cannot state a cause-and-effect relationship between curriculum format and students' learning preference and style. The authors may conclude from their data only that the students' learning preference and style did not change over the period of a year while they were studying in a "guided-study, modified competency-based program." (p 685) The study's design was not appropriate to answer the researchers' question.

The data on the students' learning style according to Kolb seem indeed to be characteristic for occupational therapy students and practitioners, namely, an accommodation-type that emphasizes concrete experience and active experimentation modes of learning. (This study's results are very similar to my results in two countries).

The data of the Cahill and Madigan study, if calculated for a test-retest reliability coefficient, could provide support for the consistency of the LSI dimensions, which would add to previous data (1, 4). However, the critical questions are "What change did the authors expect?" and "Why should a change occur in the first place?" According to Kolb's theory (5, 6), we may say that students who choose a profession that is compatible with their learning style will probably keep their preference for the same learning style or even strengthen it, provided that the instructional methods are in accordance with their learning modes. Therefore, considering the curriculum format mentioned in the study, (a clear description of the methods is missing), a rival explanation can be suggested, namely, that no change was found because the program perfectly fits the occupational therapy students' learning style.

The findings may also support Kolb's idea that an individual learning style is a relatively stable attribute or preference and as such is not expected to change much over time. The authors raise this point in their discussion, but they do not go on to hypothesize that no significant change in learning style will be found unless other variables are taken into account. The most important variables would be individual differences, as mentioned by the authors in the discussion. Although we tend to consider group means in research, we must remember that each student has a different learning style that may interact best with a particular instructional method. This point is fundamental in a study of the interaction between individuals' aptitudes and instructional methods (7). Many previous studies in education suggest that this interaction is especially important in acquiring higher order skills, such as problem solving, and less so in basic knowledge acquisition (2, 7).

Naomi Katz, PhD OTR
Jerusalem, Israel

REFERENCES

The Authors' Response
Katz's point concerning the size and composition of the study's population is well taken (we noted these limitations in the article (1, p 686)); however, we have not claimed a cause/effect relationship.
We have additional evidence, not included in the article in question, that confirms Katz's second point. We found that different student groups had similar characteristics over time (University of Illinois: 1975–1981) and across geographical location (Illinois and California). However, it should be recognized that while our data showed group means to be similar, individual scores of our students varied on all dimensions of both inventories (i.e., one score showing a 10-point increase in the reflective-observation dimension of the LSI, another showing a 42-point decrease in the teacher-structured dimension of the LPI). Not all students conform to the mode. Therefore, Katz's premise that the students' learning styles fit perfectly with the University of Illinois program could not be valid for a certain number of the students. Also, what about occupational therapy students in other programs with different teaching/learning methods? The students that did not fall within the mode also did not change their learning styles or preferences. This fact would tend to add evidence to Kolb's contention that learning style is stable over time (2).

In light of Kolb's contention, Katz questioned what we would expect, implying why raise the question at all. Putting aside the points that (a) we were also examining the Learning Preference Inventory and (b) the appropriateness of confirming previous research, we cited three studies in which the question of teaching/learning methods' effect on learning preferences was raised (3–5). We felt we were in a good position to test those researchers' questions/indications for further research.

We reasoned as follows:
- The teaching/learning methods of our program differed markedly from those that most of our students had experienced previously.
- We could provide a situation in which students were exposed to new and different teaching/learning methods.
- Evidence of change in our students would indicate an area of study that would have a high probability of producing useful results.

This study was our attempt to find evidence for or against a proposition which was identified by other researchers as a possibility. Is not that what scholarly activity is all about?

Rosemary Cahill, MS, OTR
Chicago, IL

M. Jeanne Madigan, EdD, OTR
Richmond, VA

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Home Health Care
I must commend the excellent coverage given in the November 1984 AJOT of what can be a very complicated and foreign subject—home health care. The articles are all very well written, clear, and obviously well researched. The information in the articles is accurate and realistic. I have brought three of the articles to the attention of our five supervisors and all our occupational therapists.

Thank you for devoting an entire issue to Home Health Care. We in the field appreciate the work you did in this issue.

Keren G. A. Diamond, BSN, MBA
Worcester, MA