

Getting the most out of sequential teaching.



Helen Spafford Jacob

School of Animal Biology, University of Western Australia

Robyn Honey

College of Law, University of Notre Dame, Australia

Catherine Jordan

Graduate School of Management, University of Western Australia

The dual nature of the university as a research and teaching institution provides students the opportunity to be taught by experts. However, with course offerings decreasing, teaching loads increasing and class sizes swelling, students' access to expert instruction is often limited to 1-3 lectures per topic. Typically, a sequence of lecturers presenting material in their field of expertise and a unit coordinator (who may or may not attend the lectures) is the students' sole continuous contact. This "sequential teaching" is qualitatively different from solo lecturing, team-teaching or guest lecturing.

Sequential teaching does provide some benefits for both students and teachers. However, it also has significant costs, which are predominantly borne by the students. The desire to expose students to expertise is often gratified at the expense of the student-teacher relationship. Students may have as many as six lecturers in one unit. In such circumstances, it is practically impossible, for even a skilful teacher, to build a rapport with students, creating a barrier to effective teaching. Furthermore, sequential teaching often jeopardises the quality of curriculum design, because it offers little opportunity for true integration of concepts. Finally, sequential teaching also complicates the process of assessment.

This paper attempts to identify the advantages and disadvantages of sequential teaching. No attempt is made to offset the latter against the former. Instead, this paper aims to explore ways in which the maximum benefit may be derived from the advantages of sequential teaching, and ways in which its disadvantages can be minimized. The paper also suggests strategies that may be used to meet this objective.

What is sequential teaching? And why is it used?

One of the greatest advantages of learning at a University is that students have access to cutting edge thinking and technology because research is a principal responsibility of a University. This is especially valuable for students who are interested in post-graduate research careers.

However, universities are struggling to balance quality instruction and increasing enrolments with the ever increasing need for academic staff to produce quality research and obtain

external funding. The challenge is to ensure that researchers are not over-burdened with teaching duties to the detriment of their research.

Sequential teaching is a mode of teaching in which information is truncated into several modules strung together in a sequence (see Figure 1). This practice is commonly adopted as a strategy for protecting research whilst maintaining student access to experts. The unit is organized and administered by a unit coordinator who often (but not always) participates in the teaching of the course. Typically, a unit coordinator enlists several lecturers to each deliver a few lectures on an assigned topic. This means that the students may be exposed to many lecturers in a teaching block. Each teacher has power and responsibility only for their own module and maintains little or no contact with the students after their module is complete. The students' only continuous contact is with the unit coordinator, who performs a primarily administrative function and might not actually attend the lectures other than to introduce the course and conduct business. Indeed, the authors of this paper are aware of an instance in which a coordinator did not attend class once, even to introduce himself.

A comparison between sequential teaching and some other modes of teaching

Sequential teaching differs qualitatively from other models of teaching such as the individual lecturer, guest lecturers, and team teaching.

Sole lecturer

Compared to sequential teaching, units run by a sole lecturer have a greater opportunity for content integration and for the development of a rapport between the teacher and students. One person is responsible for the administration and delivery of the instruction, whereas in sequential teaching one person administers and multiple people instruct. The lecturers in the sequentially taught class have little or no information about the content other lecturers present. Furthermore, they have no reason to be interested in the content of those classes, because the responsibility of each teacher extends no further than their own module. They are not accountable for the quality of the unit as a whole nor have they any stake in its success.

Guest lecturers

Guest lecturers enter the classroom as external authorities and deliver a 'cameo performance'- usually at the invitation of the unit coordinator.

Generally, the subject-matter taught in a guest lecture has been adjudged to be relevant and important by the unit coordinator, who is cognizant of the overall objectives of the unit. Very often, as the guest is teaching at the unit coordinator's invitation, the coordinator will, as a matter of courtesy, attend that class. Thus, although the teaching is executed by a guest, the unit coordinator remains responsible for arranging the lecture, the relevance and importance of the subject matter and is accountable for the success of the guest's classes. As a consequence of these facts, the quality and content of a guest lecture is tied to the success of the unit.

Furthermore, the material presented by a guest lecturer is often not assessed (or if it is, the assessment is written and marked by the unit instructor). In the sequential teaching model all the lecturers typically write separate questions for a final examination and many often mark those questions themselves. Usually, this is the only assessment students receive for the individual modules. The exams are often produced in modular form (parts A, B, C) to create ease in marking. This means that there is little opportunity to assess the students' ability to integrate the information.

Finally, a guest lecture is usually an isolated occurrence within the context of a course taught predominantly by one person or by a small group of people. This means that a lack of rapport between the guest and the class has less impact upon the success of the unit than does the absence of rapport which is likely to exist throughout a sequentially taught unit.

Team teaching

The distinction between sequential teaching and team teaching is less clear-cut. Team teaching is based on the premise that all instructors are equally involved and responsible for student instruction, assessment, and setting and meeting the learning objectives (Bess, 2000). The team members are interdependent and derive satisfaction from being part of a team and from the success of the overall project (Bess, 2000). Team teaching scenarios often involve more than one instructor being in the classroom at the same time. The instructors make efforts to assist students in the integration of content. By contrast, sequential teaching partitions the instruction into discrete units. Decisions about lecture content and assessment are made by the individual lecturers independent of one another. The only unifying factor in a sequentially taught unit is the coordinator, who might not participate in any of the teaching and probably does not attend the lectures.

Advantages of sequential teaching

There are some advantages of the sequential teaching model.

- As mentioned above, students meet or at least see and briefly hear about the work that is going on in their discipline from specialists. This may be an advantage for those students contemplating fourth-year projects and post-graduate studies.
- The sequentially taught unit may serve as a sampler or ‘smorgasbord’ for a particular field of learning. In doing so, it may provide a valuable service for the students by helping them to ascertain whether or not they want to specialise in an area. This approach may also help them to identify ‘compatible’ researchers with whom they may enjoy collaborating in the future.
- A sequentially taught unit also exposes students to more than one interpretation of the subject matter thus reducing bias in instruction (Beard and Hartley, 1984) and promotes critical thinking skills.
- Sequential teaching exposes the student to different teaching styles and this may be beneficial for the students because their “repertoire of learning styles will thus be enlarged and they will be more likely to flourish in a greater range of settings.” (Brookfield, 1990). Individual student differences (such as intelligence, achievement motivation, anxiety, and prior knowledge) have been found to affect learning and education achievement (Snow, 1977 as cited in Beard and Hartley, 1984). These should be considered first when developing instructional models (Beard and Hartley, 1984). Barring any *a priori* consideration of these factors, the greater the number of teachers participating in a course, the higher the probability that the student will encounter a teacher who matches their learning style. Conversely, the greater the number of teachers, decreases impact of each individual teacher and thus diminishes the cost of encountering a poor teacher. (Indeed, a student commented to one of the authors that s/he welcomed the greater number of teachers involved in sequential teaching because it minimised the time spent with poorly skilled teachers).

Disadvantages of sequential teaching

The disadvantages of sequential teaching are plentiful and are borne predominantly by the students.

- Each of the benefits stated above assumes that expert researchers also make expert teachers and can clearly communicate the concepts in their area of expertise. Obviously, this is not necessarily so (McKeachie, 1994) and there are important considerations such as the collaborative ability and verbal communication skills of the researcher that need to be considered before that person is called on to share expertise (Braxton and Del Favero, 2000). The mind-set of a researcher is distinctly different than that of a teacher (Braxton and Del Favero, 2000).
- In sequential teaching, the incentives for investment by teachers in good instructional development are minimal. Therefore, there is a higher probability that the outcome will be poor. Furthermore an individual instructor's overall time commitment to the whole unit and the class is fairly minor, so they are less likely to feel individually responsible for the unit's success or for its failure.
- Probably the most significant cost for the students is the lack of cohesion in instruction. "Sound knowledge is based on interconnections." (Biggs, 1999) As stated by Angelo (1993), "To be remembered, new information must be meaningfully connected to prior knowledge." In a sequentially taught course there is little opportunity to facilitate those all important connections. The disjointed nature of a course of instruction characterised by a sequence of lecturers filing in and out forces students to compartmentalize the information learned. The lack of communication between lecturers does not create an environment conducive to integration of concepts. Good teaching contains a structure and fosters the creation of connections. "New information should not just be dumped on the learner," (Biggs, 1999) but in a sequentially taught unit often lecturers do little more. The higher-level learning is hardly cultivated.

This is particularly damaging for students in introductory courses. These classes are foundations for subsequent coursework and a good grounding in the basic principles and concepts not just the facts is a key to future success. Overall students will gain little from a sequentially taught class unless they are highly motivated.

- A second casualty of the sequential mode of teaching is the student-teacher relationship. When a teacher spends three 45-minute sessions with the students there is little time to get to know the students names, and assess their level of background knowledge. When all parties know that lecturer will be involved for only a brief time, there is no incentive on either side to make an effort to build a relationship. "People who are anonymous are less likely to take any personal responsibility." (McKeachie, 1994)

The quality of the student-teacher relationship in turn impacts on the quality of the learning environment. "Most students have to believe teachers know and care about them before they can benefit from interactions – or even interact." (Angelo, 1993) A teacher who is perceived as inaccessible, unapproachable etc is less able to function as a good teacher and students will derive little benefit from their expert perspective.

- Another disadvantage of the sequential model is the complicated nature of assessment. While some sequentially taught classes have standardized examinations written without any input from the lecturers, many classes will have original examinations in which each lecturer contributes questions from their “section” of the class. Unless there are very clear objectives for each section, the students will be reduced to “guessing” what each lecturer will ask. “Whether faculty ‘teach to the test’ or not, most students are going to try to ‘study to the test’ (Angelo, 1993).” There is also problem of variability in lecturer marking criteria and performance expectations. “Countless studies have shown how the same essay will be given quite different marks by different examiners.” (Rowntree, 1987) In assessment of sequentially taught units the variability in marking is complicated not only by the number of markers, but the number of question writers and their expectations.

Recommendations

We suggest that the sequential mode of teaching should not be used at the first year level. Introductory courses ought to be concerned with fundamental principles of such a nature that they could be taught by any individual within the faculty or department offering the course. Sequential teaching should be reserved for higher level courses and (particularly) for courses offered at a ‘postgraduate level.’ Where sequential teaching is deemed necessary or desirable, the costs should be borne in mind and an attempt made to implement strategies to overcome these problems or at least minimise their effect.

One such strategy was suggested by a participant in the Teaching and Learning Forum. The unit coordinator may deliberately include in the assessment a problem which requires students to integrate the concepts taught in the course. In this case, the instructor should clearly inform students of this requirement at the outset of the course. Thus the students may be used to ‘drive’ a reform process whereby teachers are required by students to show how their module interacts with others and explain its place within the ‘scheme’ of the course.

We also suggest that each instructor provide students with clear objectives and assessment criteria at the outset of their module. “Explicit criteria increase the likelihood that different markers will come up with the same mark.” (Gibbs and Habeshaw, 1989) Such criteria also give students an idea of what is expected of them.

We likewise encourage significant interaction between instructors to educate each other about the content of modules in a sequentially-taught unit with the intention to move toward a true team-teaching model. All teachers in a unit must be prepared to address “four critical inevitable challenges – exchanging relevant information, learning as individuals and learning as a group, sustaining high levels of motivation, and negotiating differences.” (Bess, 2000) The exchange of relevant information enables the lecturers to construct the links between content and then foster the same connections for the students.

Ideally, the responsibility (and credit) for the quality and success of the whole unit should rest with all staff involved including the unit co-ordinator. However, if this is not possible, then it is important that the unit co-ordinator has the power necessary to require individual teachers to make any changes necessary to their module for the good of the teaching of the unit. Too often, co-ordination of very important introductory, sequentially taught units is seen as a purely administrative task and given to junior staff. In such circumstances, the unit co-ordinator may lack the experience and the power needed to keep the unit ‘in-shape’.

Conclusion

Many of us, including the authors, have been involved with the sequential teaching model either as students or educators. It is perhaps such a familiar mode of instruction that few have contemplated the advantages or disadvantages and whether there is a need to challenge its use in higher education. There are many ways in which students are taught at the university and there is certainly room for diversity. There may be some situations in which sequential teaching may be a more appropriate model than others. However, there are some substantial costs for the students through this model. For this reason the use of sequential teaching should be carefully considered before it is implemented. Once implemented every effort ought to be made to minimise the disadvantages and make the most of sequential teaching.

References

- Angelo, T. A. (1993). A "teacher's dozen:" Fourteen general, research-based principles for improving higher learning in our classrooms. *AAHE Bulletin*: 3-7,13.
- Beard, R., & Hartley, J. (1984). *Teaching and Learning in Higher Education*. Paul Chapman Publishing: London.
- Bess, J.L. (2000) Integrating autonomous professionals through team teaching. Pp. 203-235. *In* Bess, J.L. and Associates (eds) *Teaching Alone, Teaching Together: Transforming the structure of teams for teaching*. Jossey-Bass Inc.: San Francisco, California.
- Braxton, J.M. and Del Favero, M. (2000). The researcher: generating knowledge for team teaching. Pp 62- 84. *In* Bess, J.L. and Associates (eds) *Teaching Alone, Teaching Together: Transforming the structure of teams for teaching*. Jossey-Bass Inc.: San Francisco, California.
- Biggs, J. (1999). *Teaching for Quality Learning at University*. SRHE and Open University Press: Buckingham
- Brookfield, S.D. (1990). *The Skillful Teacher*. Jossey-Bass: California.
- Gibbs, G. & Habeshaw, T. (1989). *Preparing to Teach: An introduction to effective teaching in higher education*. Technical and Educational Services: Bristol, UK.
- McKeachie, W.J. (1994). *Teaching Tips: Strategies, Research, and Theory for College and University Teachers*. D.C. Heath and Company: Lexington, Massachusetts.
- Rowntree, D. (1987). *Assessing Students: How shall we know them?* Nicholas Publishing Company: New York.

Figure 1. The sequential teaching model is characterized as a train. The unit coordinator (engineer) sits in the engine and makes sure everything runs smoothly. Each separate module (train car) is controlled by a separate individual and these contribute to the design of the final assessment (caboose).



