



Effects of Large Class-Size on the Classroom Instructional Processes

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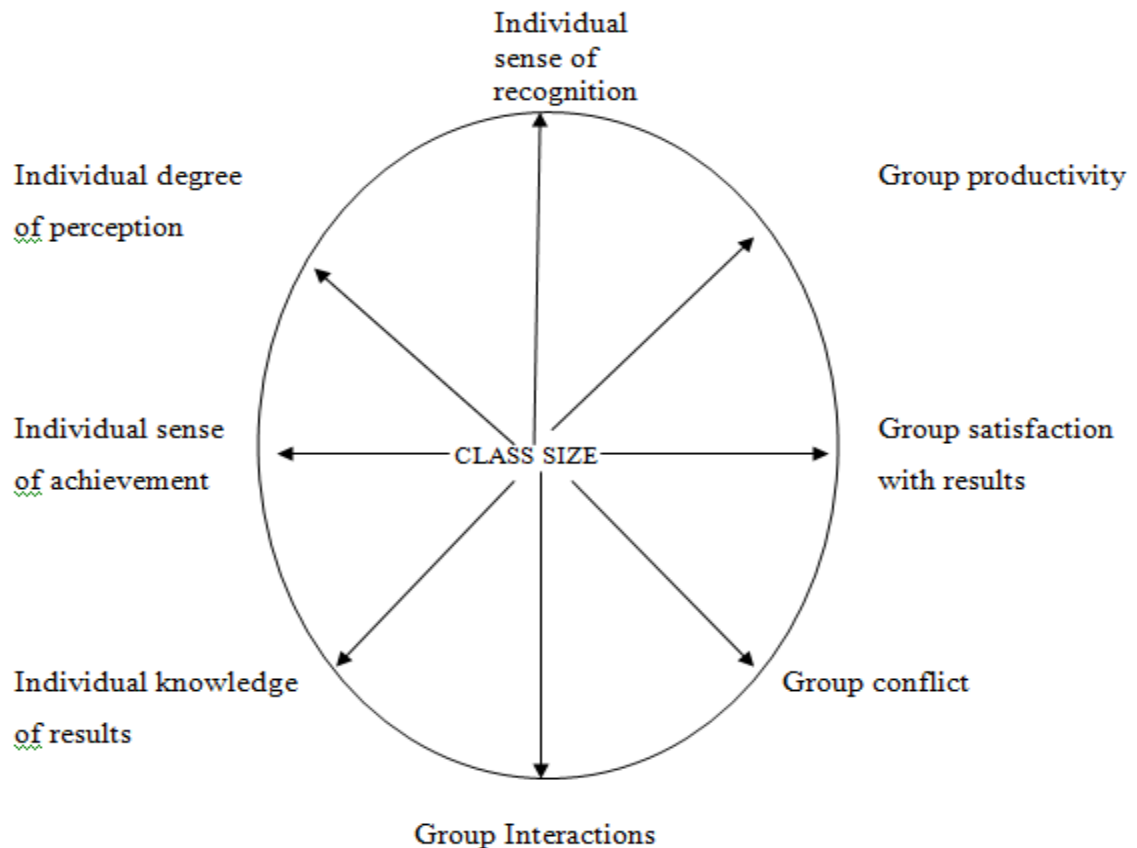
The size of a class has always been an issue of great controversy between the educational administrators and teachers. In democratic welfare states governments often aim at providing inexpensive and equal access to education to all citizens despite the scarcity of available educational resources. The educational administrators, who are entrusted to implement government policies within the limited financial budget allocated to them, show much interest in the issue of class size. The issue is of major interest to them because change in class size has immediate and direct implications for the cost of education. Motivated by the desire to contain such costs they argue that class size is only one of a number of factors that affect the quality of instruction, and that taken by itself it has little impact on learning. They reason that regardless of class size, teachers can employ effective pedagogical techniques within the classroom to promote learning.

Majority of teachers, however, do not subscribe to this view. They prefer small classes for purely pragmatic and practical reasons. They believe that small classes reduce their workload, provide them enough opportunities to interact with students thereby minimising disciplinary problems in the class and promoting learning. (Glass et al. 1982, 1987). They argue that since they are able to monitor learners' 'on' and 'off' task behaviour more effectively in a small than in a large class, they can pay attention to the learning problems of most of the students within the allotted time, and thus improve the overall quality of instruction.

The views of educational administrators and teachers thus present a conflict -- while the former insist that having large classes does not affect the quality of instruction, the latter feel that small, and not large classes, are conducive to students' learning.

The effects of large class-size on teaching and learning

Davies (1971:129) has pointed out that from the standpoint of educational theory, the size of a class for a learning group could be expected to have a number of discernible effects. These are highlighted in the figures below in terms of group expectations and the expectations of individual students. Some of these effects are concerned with the task; for example, group productivity and individual knowledge of results.





Other effects are concerned with the relationship between members making up the group : for example group conflict, individual sense of recognition, etc. The effectiveness of the group or class in realizing its learning objectives is a product of its task and relationship orientations.

As the size of a learning group increases, various changes are likely to occur :

1. The resources of the group are enlarged in terms of knowledge, experience, and approaches to problem-solving. (This condition is less important, of course, in situations where student participation is not effectively utilized, for instance, as in lecture presentations).

2. The group becomes less able to utilize and exploit these resources. Since discussion time is necessarily limited, significant contributions are likely to be difficult to obtain from every student. It is also more difficult for members to make their contribution at an appropriate time, before the impact of their viewpoint has been lost to the discussion.

3. Satisfaction with the quality of the contributions tends to decrease. This is partly because it becomes more and more difficult to keep track of the discussion, while still keeping contributions in mind, and also because there is a feeling that it is impossible to come to grips with a problem in a large group.

4. Individual differences between members become more marked. Accordingly, it becomes more and more difficult to reach a consensus, and there is also a marked likelihood that members will break into conflicting subgroups.



5. More students are kept waiting, while the rest of the group attempt to catch up with them in their learning. (In small groups, students can be more evenly matched, so that individual members are rarely held up for any length of time).

6. More students feel a constraint against participating in the discussion. As a consequence, the group tends to become dominated by fewer and fewer people.

Theoretically, therefore, the size of a class or learning group does appear to be a significant variable, although the effects of group size seem to be of greater relevance to classes employing discussion methods

than to classes employing more formal strategies, like lecture presentations.

Davies also sums up the operational effects of the large size of the class as reported in the research findings. Generally speaking, research demonstrates that the large size of a group does have a number of important consequences. As Davies (1971:133) points out, all other things being equal, the larger the group:

- (1) The greater the demands upon the teacher and the class, the more the demands on the students to make use of his skills.
- (2) The greater the group's tolerance towards direction by the teacher - leader, the more differentiated he becomes from membership of the group as a whole. In other words, the situation becomes more centralised.
- (3) The greater the tendency for the more active members to dominate the interaction within the group.



(4) The greater the tendency for the less active members to become inhibited in their participation and the less exploratory and adventuresome or creative the group's decisions becomes.

(5) The greater the tendency for the group's atmosphere to become less intimate, the more anonymous the actions, and generally less satisfied the members become with the results of their discussion.

In his review of the research studies which report the above findings, Davies noted that beyond the membership of five to seven group members, formality in leadership emerges rapidly, tension decreases, attitude changes become less marked resistance to new ideas is reinforced and group solidarity increases. Hallinan and Sorensen (1985) have argued that class size is directly related to both length (quantity) and quality of instruction, and that the magnitude of the effect differs by the type of instruction. They identify at least three ways in which class size affects the length of instruction.

First, teachers must spend more time in administrative and organisational tasks in large classes than in small ones. Keeping records, distributing materials, collecting assignments, and planning social events are examples of classroom activities that demand more teacher time as the number of students in the class increases. The amount of time spent on these tasks is inversely related to instructional time within a school day of fixed length.

Second, class size affects the amount of time that teachers devote to controlling students behaviour. Disruptive behaviour often occurs within a day since it generally involves peer interaction. Adding a single child to a class of N size increases by N the number of days in the class that may create discipline problems.

Third, class size affects length of instruction through its influence on teachers' pedagogical practice.



Hallinan and Sorensen also point out that besides affecting the quantity or length of instruction, class size also affects the quality of instruction. Instructional quality is highest when teachers engage students cognitively for long periods of time with high quality curriculum materials. Students on average are engaged during instruction about 75 per cent of the time with considerable variations across classrooms, across time of day and week, and across individual students. Good teachers are those who can reduce students' inattention. To engage students in learning requires teachers' planning and energy. However, the larger the class it would require greater efforts on the part of the teacher to engage each student and to meet their cognitive and emotional needs. Moreover, larger groups are likely to have fewer teacher-student interactions per student. Since these interactions such as praise, encouragement, corrections of mistakes or errors, and refocusing the learners on the learning task etc foster positive attitude towards learning and hence helps indirectly in the learning, their reduction in large class can result into lower-quality instruction.

Gagne' and Briggs (1974:253-55) have noted that large size of the class leads to marked reduction of precision in the management of instructional events and gives birth to a 'probabilistic strategy' of instruction. Instruction so designed may be effective on the average but cannot by itself be insured as effective for each individual learner. The components of mastery learning such as cues, participation, reinforcement and feedback/correctives cannot be extended effectively in a large group though a uniform mode of instruction such as lecturing. Moreover the learners have varying degrees of instructional readiness, motivation and alertness and different semantic encoding strategies. For example, what some students fail to learn from a lecture they may learn later by employing their own encoding strategies on notes on lecturers. Other students may find this kind of encoding ineffective and may prefer to process the information in its oral form as originally given.

Gagne' and Briggs thus look at the problem of teaching in large class through an information processing framework and they suggest varied instructional techniques as possible



solutions to overcome the effect of a large class. They mention some of the instructional processes which may generally occur in a large some of the instructional processes suggested by them are:

1. Gaining attention:

The event of gaining attention is highly important for the effectiveness of instruction delivered to a group. It is surely no more than a probable occurrence in a class of young people, and often little more likely in a class of older students. The occasional use of demonstrations and audio-visual media can aid and the gaining of attention at times when other critical instructional events are to follow.

2. Informing the learner of the objective:

The objective can readily be stated and demonstrated to a large group. It will probably be comprehended by all students, when suitably prescribed.

3. Stimulating recall of prerequisite learning:

This event maybe of critical importance for learning. It is also, perhaps, one of the most difficult events to accomplish with reasonable probability in a large group. Typically, the teacher calls upon one or two students to recall relevant concepts, rules or information. Obviously though, the necessary retrieval may not be achieved by many other students, many of whom are hoping to avoid being called upon. As a result the management of this event may often be inadequately accomplished. Those students who have not recalled pre-requisite skills will probably not learn the relevant objective. Various means (such as ‘spot quizzes’ for the entire group) are employed to improve the operation of this event.

4. Presenting the Stimulus material:

The content to be learned can be presented in a way that emphasizes distinctive features. This means that the presentation can be made optimally effective “on the average”.



5. Providing Learning Guidance:

In a large group learning guidance can be provided in a way which works, in a probabilistic sense, for most members of the groups. For example encoding of an instructional event may be suggested by a picture or dramatic episode, which may be generally effective in the group as a whole. However, even this particular encoding cannot be adopted to the individual members of the group, as it can in smaller groups.

6. Eliciting the Performance:

Control in obtaining the learner's performance is much weakened in the large group. In a typical class the teacher calls on one or two students at a time other students in the group may occasionally be responding covertly, but this is not a highly likely possibility. Accordingly it may be seen that student response has a low degree of precision as an instructional event in a large group.

Frequent quizzes and tests can be given to overcome the difficulty of eliciting student performance.

7. Providing Feedback:

Feedback to students in a large group occurs with low frequency, and is likely to be confined to results of tests covering a number of different learning objectives.

8. Assessing the Performance:

The more frequent and regular assessment (followed by corrective feedback) can be, the better will be the outcome of learning.

9. Enhancing retention and transfer:

Events of this nature can be accomplished by the teacher, again in a probabilistic sense. That is the teacher can use the varied examples and spread reviews which have been found to



work best “ on the average” but is unable to adapt these techniques to differences in individual learners.

From the foregoing discussion on the effects of large class size on the classroom instructional processes and students and teachers’ behaviour, we arrive at the following generalisations.

1. Although as the size of a group’s increases, there are increased resources in terms of knowledge, experience and approaches to problem-solving, yet within the limited time available, all of these resources cannot be exploited. It is also more difficult for members to make contributions at an appropriate time because many typical characteristics of a large group such as heightened noise level of the class, the fear of vehement disagreement from the crowd etc. prevent them from doing so, or simply the inhibiting social and psychological group dynamics in a large class may prompt the students to retire into themselves.

2. Individual differences between members become more marked, it becomes difficult to reach a consensus. The more active learners may dominate the groups activities and the passive members may either follow them or break into conflicting circuits. The group may show more dependence on the teacher.

3. The large size of the group also affects the amount of time devoted to executing tasks and controlling students behaviour in India and thus may affect the length of instruction through its influence on teacher’s pedagogic practices. As a result the teacher will have less time for satisfying the cognitive and affective needs of the learners. And thus the quality of instruction will also suffer.

4. The instruction in large class will be a sort of probabilistic strategy which may not cater to the learning needs and styles of all the learners.



To conclude, the effects of a large instructional group indicate that teaching and learning in such settings can be problematic for both teachers and learners. Evidently as the size of a class increases, the problems embedded in the instructional setting are magnified and it becomes extremely difficult for a teacher to deliver lessons effectively.

References

Davies, Ivor, K. 1971. *The Management of Learning*. McGraw-Hill.

Gagne, Robert M. and Leslie J. Biggs. 1979. *Principles of Instructional Design*. Second edn. New York: Holt, Rinehart and Winston.

Glass, G.V., Cahar, L.S., Smith, M.L., Filby, N.N. 1982. *School Class Size : Research and Policy*. Sage.

Glass, G.V. 1987. Class Size. In Dunkin, M.J. (ed.), *The International Encyclopaedia of Teaching and Teaching Teacher Education*. Oxford : Pergamon Press, PP.540-545.

Hallinan, Maureen T. and Sorensen, Age B. Class Size, Ability Group Size and Student Achievement. *American Journal of Education*, 94:1, November 1985, pp.71-89.