Bell Curve--Aid to Language Learning

Ken Anderson

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I should state at the outset that this paper will be of a more theoretical nature than most. I am not saying that I have not drawn the ideas from reasonable evidence and data, but rather I do not feel that one would be any more convinced by my meager statistics. I have found them reliable to my satisfaction; I believe a simple, careful examination will convince others that they do have merit. I do not apologize for this, but think it only fair to inform you in advance. I present these ideas here to all for their consideration.

The Bell Curve, or Gaussian Curve, is a common means of showing distributions of characteristics among biological organisms. It demonstrates that for any given characteristic, the majority of a group will align themselves in an average range with dramatic decreases in either direction away from this common area.

This distribution is so well known and applied in the world around us that it has come to be known as the "normal curve," or simply "the curve," indicative of its profound impact and acceptance. Needless to say, it finds its way into education, as well as numerous other fields.

Perhaps its application in the education field is so well known because it and its devasting consequences come within the experience of all who are students. Though scorned by many educators, the curve is an accepted method of grading for numerous professors. Students characteristically despise it, and why not since it labels more than two-thirds of them as average or worse. (And who in this age of excellence wants to be labeled as average?) It might not be too far off to claim that this distaste for it arrises from the fact that, to the satisfaction of most, it has been proven true(And how the truth hurts!).[1]

At any rate, the truth of it does not seem to be challenged, but rather the moral implications of using it.

Present applications by teachers are generally limited to grading of an individual test, and in some cases, for the total class grade as well. In these cases, the curve is usually plotted along a grading scale that goes from zero to one hundred, with grades assigned along that scale so that the center of the curve falls in the "C" range. (See Figure 1)

In such a case, we are supposedly measuring the degree of competance in the subject matter being offered. In a language class we have been measuring a characteristic of language ability.

The scope of the measurement does not seem to effect the distribution,

for we find a normal distribution in a single case(one test or in a larger one(the class).

Now if this holds true in both of these limited areas of the characteristic, one of which is a smaller segment within the other, it logically follows that the same should hold true for greater areas or even the entire characteristic. If it is in truth a scientific fact, and I don't hesitate to call it a physical law of science, then its application should be universally true.

We can extend the curve to show the entire language ability. In this case, zero will represent no language ability and one hundred will show "perfect fluency." We assume that in the same way that a class or test grade is plotted, the output of students through an entire language learning experience can likewise be plotted.

To plot any given group on this scale we pick an arbitrary time universal to all students. We will choose as our occasion the termination of the language learning experience. That is, at the time of language study termination each student will fall somewhere between the point zero and one hundred on the grading scale.[2]

Since this is an extension of other applications of the curve, we expect the distribution to maintain a bell shape. In other words, the majority of the students terminate their study when they are in the average fluency range.[3]

Now supposing that the result is a Bell Curve, what does that show?

By using this graph of the entire language ability, we can plot the relative progression of a beginning student through the levels of language learning. This may be of benefit to us in that we may expect (because of the odds) our student to terminate his learning at this stage and we may try to prevent it. However, the possibilities are much more far reaching than that. Many other things can be predicted; this is only the tip of the iceberg or the hint of the gold vein. Naturally, the limitless possibilities for its use extend far beyond just the education field.

Let's look more closely at this misunderstood asset. Why do people fall into the Bell Curve? Why does a majority always cluster near the center of the curve?

By monitoring the actions and attitudes of students as they move up the levels and into the average range, perhaps we can find out some specific reasons for this occurrence. However, the most revealing investigation will be looking at students at the time of termination of the language study. This is to be expected since the emotions of the student are more candid and less guarded than at other points along his progression.

In looking at the students who stopped their progression at this point, we find that students in this area discontinued their pro-

gression due to a feeling of accomplishment, because they have reached a level of "necessary fluency."

Now we find that not only can we determine things about this average range, but about each part of the curve. Each has its own characteristics, often different from every other part of the curve. The curve can then be broken down into these different areas, according to its characteristics. In other words, the situations encountered in language learning are different according to the particular level of progression.

A simple analysis indicates three basic areas on the curve.(See Figure 3) One is the center of the progression and the other two are before and after the average range.

Sometimes the differences between these curve areas are dramatic. For example, students in the beginning or end of the progression will be more apt to cease their study due to discouragement.[4]

Since the situations of each level in the process are different, the teaching and learning methods may be different. In fact, they will often require completely different methods and strategies for maximum results.[5]

To analyze in detail the many different teaching methods and examine which would be best at which particular level would be another complete discussion. Hopefully this will be a topic of future research. Let me just mention, however, a few examples of some of the more obvious ones.

Probably the most exciting one is the role of culture learning in this process. Since culture and language are so interrelated, and since the integration of culture seems to encourage quick language acquisition, culture learning should have an important place in our process. The curve characteristics indicate that the most beneficial time, or the time in the language progression when cultural adaption will most facilitate language learning, will be in the second area or level. In fact, as one goes through the transition stage, the emphasis can and should become quite acute. The value of culture as a learning tool remains throughout the entire progression, but the results increase dramatically in the second level as the language first begins to really open up to the individual and he feels a sense of "language excitement."

One equally dramatic idea I feel would be the use of student-teachers in the first two areas of the progression. Students in one area become assistant teachers under the direction of the teacher for the students in the level just below them.

Another important possibility seems to be the behavioristic approach. This approach need not be totally incorporated into any of the process, depending on the teacher's personality, but it would seem well to have the second level teaching more behavioristic in comparison to the other

areas of the graph.

One aspect which is quite obvious to teachers is a gradual shift in the emphasis from more of a group learning structure to an individualized structure. As the student progresses, more of the responsibility of his growth should be placed on him. The pressure needs to become great enough to push him beyond the average range. However, the beginning classroom seems to benefit from more of a group atmosphere without the intense personal pressure, a "we're all in this together" type of a feeling. A natural part of this would be the gradual reduction of classroom size as the students progress up the levels.

In summary then, there are two major ideas. 1) The majority of the students quit their language progression in the average ability range, and, deduced from this observation but independent of it is the more important one, 2) that the analysis of the areas of language progression yield evidence to help us properly teach advancing students.

NOTES

[1] Some credit for this antagonism must be given to the improper application of the curve. Many feel, and justly so, that it pits student against student causing frustration, contention, and education for the average, among other things.

[2] A physical example for this, since established mental ones are so hard to come by, would be the height of a segment of the population. Studies can be made for the respective ages, or a cumulative one for the height at the time of death. In the latter case, the age will be different for each person. Age does not become a significant factor. Likewise, in a study of language termination, the time factor is not significant so long as we have one common occassion.

[3] I was first intrigued by such a possibility when I heard of a study done by what was then the LTM with the L.D.S. missionaries. In the course of that study they noticed something that I believe many have suspected, the interesting "leveling off" phenomena.(See Figure 2) The missionaries who had been in the field for a certain amount of time progressed to a certain level in language ability and then seemed to level off, that is they didn't progress beyond that point. I was intrigued by this idea, and so while in the mission field I investigated. At one time I was language zone leader, meaning that I was working with fourteen missionaries on their language aquisition. From the limited data they provided, I concluded that there was such an occurrence.

From that and other observations, I began to feel that there was a connection between leveling off and language termination, both being a form of discontinued progression. I felt that as many missionaries fail to continue progression, so many students of language cease their study while in the average or "necessary fluency" range.

Since this would be a universal rule, it should not be confined to language; it should be true among all fields.

[4] It should be mentioned that in general the change taking place as one moves from one area into another will be gradual. This then will make two areas of transition between the major levels of the curve. Very few of the changes occurring in language progression will be sudden. The closest might be the "enlightenment" one feels when he begins to understand the language, when the door seems to have opened.

[5] It may be wise, because of the difficulty of instantly changing one's style of teaching(from one hour to the next, or from one day to another), for a teacher not to teach more than one level at a time.

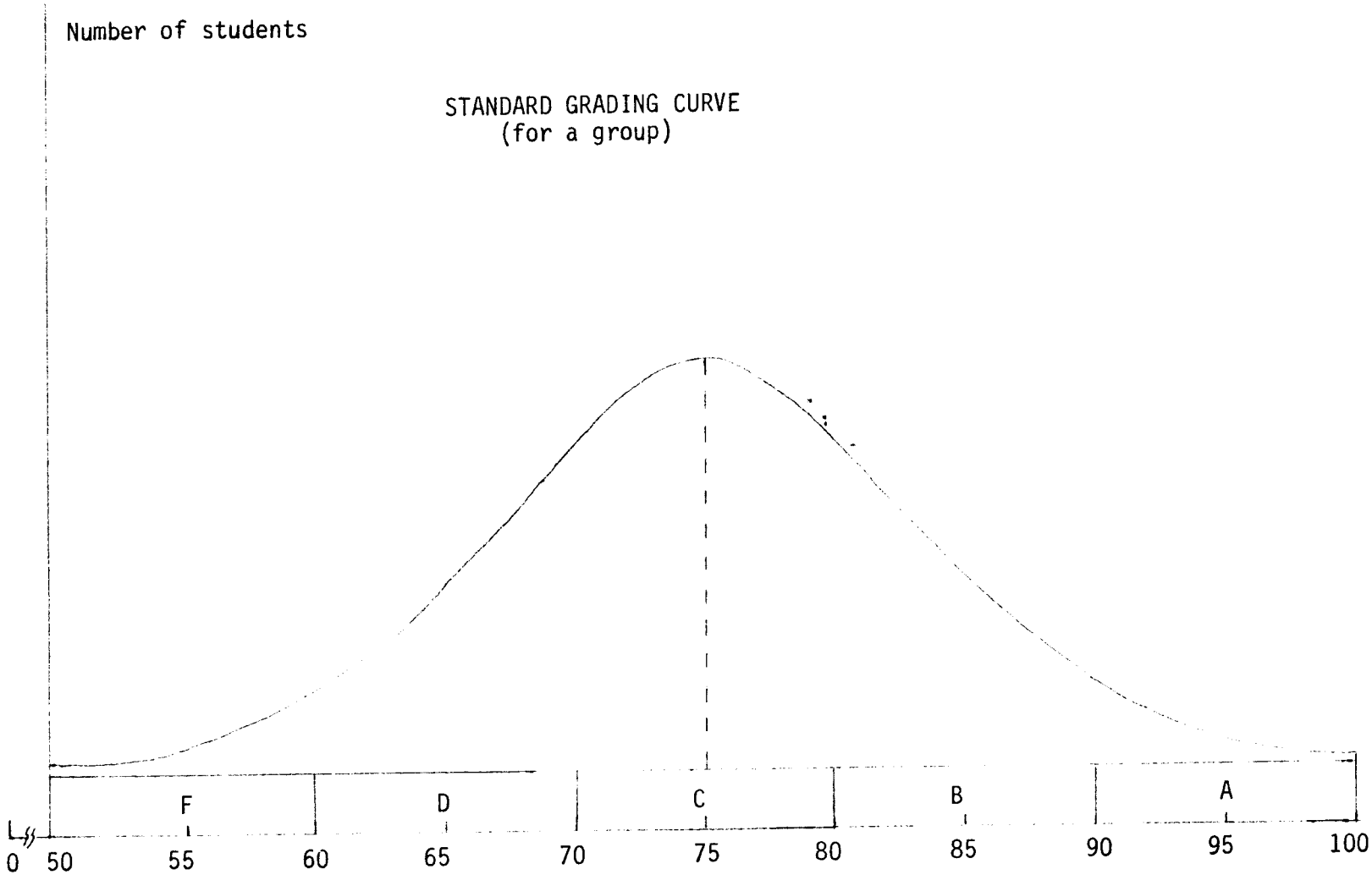
Number of students
STANDARD GRADING CURVE
(for a group)
F
D
C
B
A
0
50
55
60
65
70
75
80
85
90
95
100
Scale

Figure 1

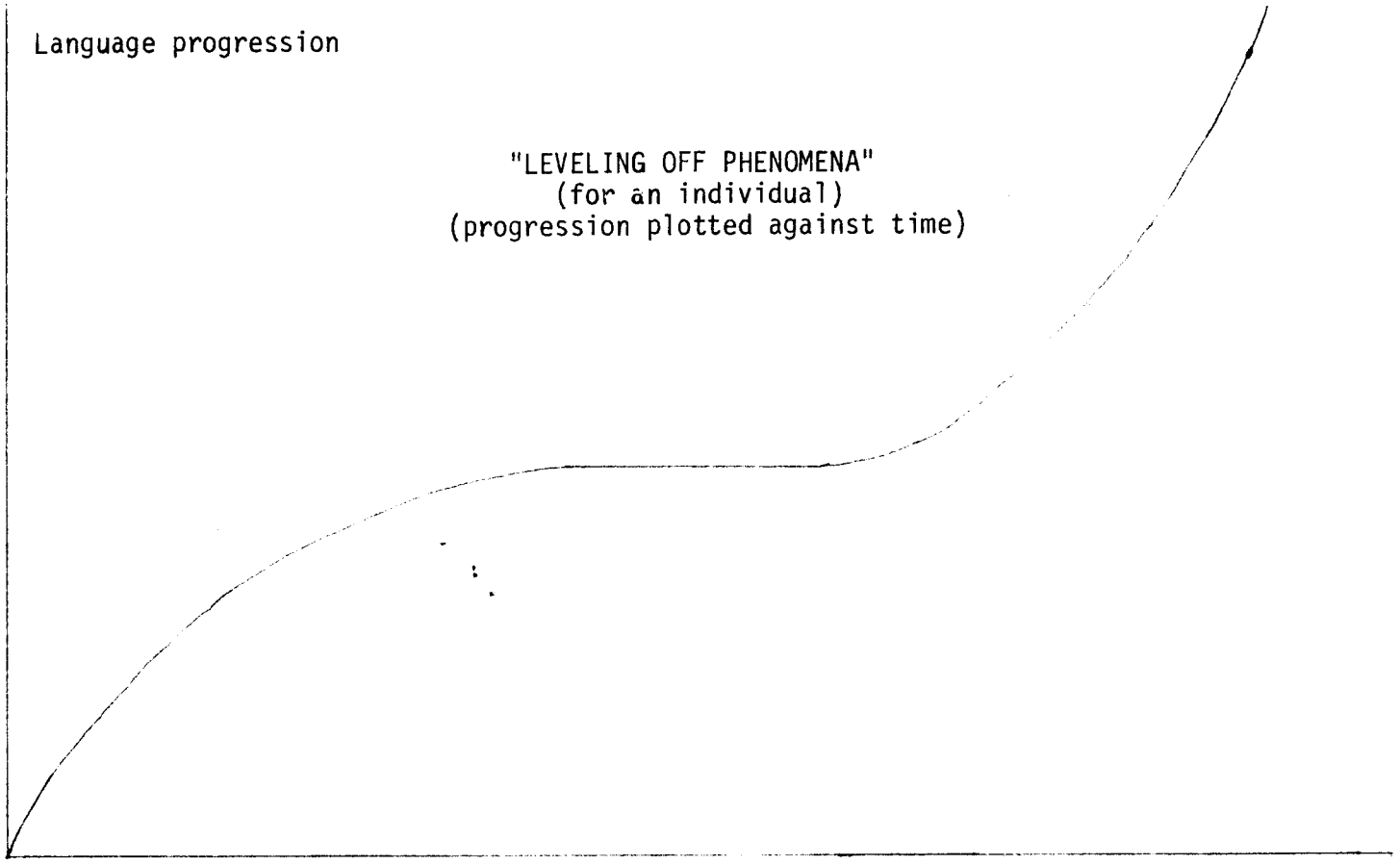
Language progression
"LEVELING OFF PHENOMENA"
(for an individual)
(progression plotted against time)
Time

Figure 2

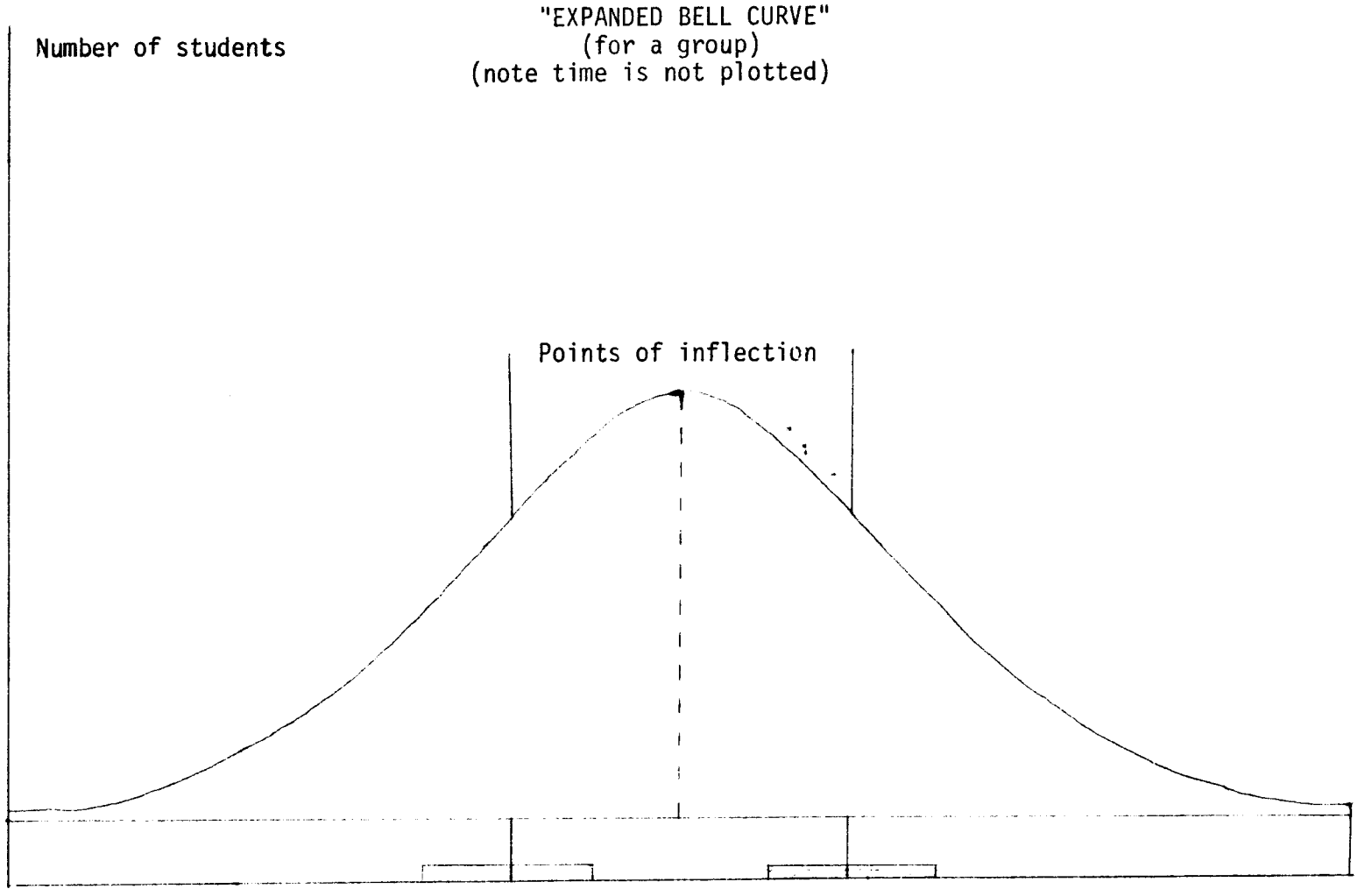
"EXPANDED BELL CURVE"
(for a group)
(note time is not plotted)
Number of students
Points of inflection
Language Ability

Figure 3