

****Start of transcript****¹

[inaudible] “celerating-- [continuation of a previous sentence?]

First of all, decelerating a good performance, if you want to do maximally economical behavioral work, you wouldn't measure the behavior over 1000 minutes when it was happening at 5 a minute; you're very wasteful of measurement time. But say you decelerated this behavior here, see, you had your record floor^{2 3} at 1 minute, and then your behavior starts coming down to your record floor, now you go to 10 minutes sample and it's coming down close, so, now we go to 100 minutes, and it's coming down close, so now we go to 1000 minutes and we have a full record of a deceleration. And we didn't waste time when the behavior was, the movement cycle was occurring at a high rate. We didn't waste time measuring the behavior over the entire 1000 minute day; we kept our record floor just under the behavior. That would be maximally efficient recording, and we draw on our charts now these record floors.

And for most personal management with low-rate behaviors, 'course the record floor is down here, below that 1000, down at the bottom of the chart.

[Q from audience:] You can say that your record floor and ceilings^{4 5}, once you empirically know about that behavior...

[Lindsley:] You don't know, because of your recording plan; rates above your ceiling, or rates below your floor. Now your ceiling can be imposed by all kinds of different procedures. Like, if, hand counters can very seldom be operated above 70, well no, I've gone to the wrong cycle, 100, 200 a minute. So you would have record ceilings in here for most hand counters, and if you had rates that went above that, you'd have to build some kind of mechanical counting system so that you could raise the ceiling and the behavior could go above it.

1 Description from Behavior Research Company, “Ogden continues discussion of the record floor (...) gives explanation of chasing the behavior below the record floor (...)”

http://www.behaviorresearchcompany.com/tutorials/short_course/REEL_07.htm

2 Record floor and Record ceiling started in Reel #6

http://www.behaviorresearchcompany.com/tutorials/short_course/Ogden_Lindsley_-_Short_Course_09_June_1969_-_Reel_06.mp3

3 Record floor: Lowest measurable or recordable rate other than 0 for a given observation period, (e.g., if observation period is 10 minutes, the smallest recordable response is 1; so the record floor is 1/10(min). = record floor of 0.1. The record floor is also a measure of the sensitivity of the observation period; for example, a shorter period could miss responses that would occur in a longer observation period. See also, p. 131, White, O.R. (1971). *A glossary of behavioral terminology*. Champaign, IL: Research Press Co.

4 Record floor and Record ceiling started in Reel #6

http://www.behaviorresearchcompany.com/tutorials/short_course/Ogden_Lindsley_-_Short_Course_09_June_1969_-_Reel_06.mp3

5 Record ceiling: Highest possible rate of responding permitted under specific conditions; e.g., if a worksheet has 50 problems on it, and 10 minutes are allowed to solve them, the record ceiling is 50/10=5 responses per minute. In the example given, it is not known if the student could give more responses per minute because the specific conditions (number of problems) set a limit on the possible number of responses in the given time. See also p. 128, White, O.R. (1971). *A glossary of behavioral terminology*. Champaign, IL: Research Press Co.

Much of the literature has record ceilings in it. Skinner⁶'s work in *The Behavior of Organisms*⁷ had the first, the levers reset once every half a second, so we have a record ceiling on the performance rates.

Let's take a classroom example: Say a child is given 9 problems and 45 minutes to do them in, and no more problems. What's the, he's got 9 problems to do in 45, and he has only 4—; 9 problems and you give him has 45 minutes; these are very big long word problems and so forth. What's the highest rate he can get? Did all right, in 45 minutes. So 45 goes into 90, I mean $9 \div 45 = 0.2$ per minute, and you might as well admit, with that kind of a curriculum programming, that the record ceiling is right there [0.2]. And it's imposed, not by the recording system, but by the programmed antecedents, by the curriculum. And suppose, now where's the floor—1 in 45 minutes, right? $1 \div 45 = 0.02$. Now that's not what I'd call swingin' measurements. [audience chuckles] She's limited herself to a ten-fold increase in behavior [0.02 to 0.2 per minute] because she's got really only 10 problems.

So this concept, record floor, is very beautiful because it puts it all on the chart, limits imposed by the recording system, the programming system, the arranging system, both upper limits and lower limits.

[Q from audience] Why don't you use 1 correct as opposed to 0 correct?

[Lindsley] Because you can't divide by 0, you get infinity [$1/0 = \text{infinity}$]. What's 0 divided by 1?

[Questioner] Oh, I thought your record floor would be 0; I can divide.

[Lindsley]: No, it wouldn't be 0.

[inaudible from audience]

[Lindsley]: What? What you've done, if you do this is you've equated two very different things; you've said 0 in 10 minutes is the same as 0 in 1000 minutes, in 100 or 1000 minutes, which is the same as 0 ever? Now, you don't really mean that, do you?

Now, many of our research people like to think when they've got 0 in 1 minute they've extinguished the performance, but that's not the same as going 1000 minutes without one. When you expect almost all the behavior, when almost all the behaviors which have been decelerated; this is before, this is during deceleration, the behavior is decelerated below the record floor. Now they take away the decelerating procedure and almost all the behavior comes back. Almost all the reversible cases you see in the literature, the record floor was up in here someplace; you'll never find them in which the record floor was out of the behavioral day. In other words, they decelerated those talk-outs down below 1000

6 BF Skinner (1904-1990) Professor of Psychology at Harvard University 1947-1974. Ogden R. Lindsley's graduate advisor and colleague. http://en.wikipedia.org/wiki/B.F._Skinner

7 Skinner, B.F. (1938). *The behavior of organisms: An experimental analysis*. New York: Appleton-Century-Crofts. 457 p. About: <http://www.garfield.library.upenn.edu/classics1990/A1990CK51700001.pdf>

minute days, or tantrums, or head-hits. So what they really did was they chased the behavior out of their observation sample, below their record floor, and just like little mice, it run along right under the floor and the minute the cat goes away, pow, back up in the kitchen comes the behavior.

The neat thing about this is, talking about record floor and record ceiling and chasing the behavior down, under the floor—little kids, 5 and 6 year old kids, understand this kind of a thing. If you really want to get rid of swearing, it's best to chase it right out of your behavioral day. Don't just chase it out of the schoolroom, or out of the kitchen, or out of mixed company, two drinks and you forget you're in mixed company, y'know.[audience laughs]

[Question from audience]: Does this make the 0 abscissa⁸ obsolete? You still use it?

[Lindsley]: Well, sure. You—it's like you use it whenever you want to. You just don't put things that are not less than 1 in a 1000 minutes below 1 in a 1000 minutes.

Let's take the 0. What is the 0 on a logarithmic chart⁹, or on this behavior chart¹⁰? What is it? It really isn't a 0. It's just a place for everything less than 1 in 1000 minutes. Suppose we go to 10,000 minutes, there may have been a couple. So we're just taking this same 0 concept now and moving it up wherever our record floor is.

Say a man has a 10 minute sample, his record floor would be 1 in 10 [= 0.1] minutes, and we draw the floor as like a little member between two vertical supports. So you think of this as the walls, and the floor is in there.

The ceiling we draw this way, across the top. So, if the performance comes right-- 1 in 10 minutes would be right here, less than that should be just below that, and we don't know how much less. We're ignorant of the distance, and, so, we're tough on ourself, and we let ourself, we just let ourself—it could be hiding right, right there, at 9 every 10, I mean 9 every 100 minutes [= 0.09]. Could be hiding; behavior could be hiding. The minute he got out of the schoolroom, he gives him the bird., he's swearing down the steps, all his behavior, all his time is filled with all of the behavior you've decelerated out of your observation sample.

[Q from audience]: So in a way, when you're working with a record floor like the school day, um--

[Lindsley]: 300 minutes.

8 Where horizontal meets on the Y-axis/vertical axis on the chart. On a logarithmic scale, log0 is undefined and does not exist.

9 Chart with logarithmic scale y-axis and a linear scale x-axis; a semilogarithmic chart.

10 The Standard Behavior Chart (6 cycle 140 day). Frequency range 0.001-1000 movements/minute. Current version (2008) is the Dpmin-11EC, daily count per minute Standard Celeration Chart (2008). Behavior Research Company, P.O. Box 3351, Kansas City, KS 66103 .

http://www.behaviorresearchcompany.com/Merchant2/merchant.mvc?Screen=CTGY&Store_Code=B&Category_Code=Dpmin-11EC

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Transcribed and annotated 5/3/08 R. G. Claypool-Frey, regina.claypoolfrey@yahoo.com

Transcription of 6-9-1969 Short Course, Plaza Inn, Kansas City, MO.

Reel #7: 11:00.088 minutes

Ogden R. Lindsley

Audio file:

http://www.behaviorresearchcompany.com/tutorials/short_course/Ogden_Lindsley_-_Short_Course_09_June_1969_-_Reel_07.mp3

[Questioner]: Yeah, and you decelerate a behavior, all you're doing is teaching a discrimination¹¹.

[Lindsley]: 'Could be, and we're often finding that. That's why home carry-through and parent, you hear teachers up and down the country talking about parent cooperation, "Why don't these social workers, and why don't, bluh,bluh, bluh, bluh. How can I, I can't work an uphill fight; I only have him for 300 minutes a day?". So, where's 300 minutes—it's right in here, and that extra amount of time in there, that extra amount of behavior, is probably crucial in some performances.

We shouldn't expect our teachers to have to decelerate performance beyond the confines of their environment. It's unreal to expect a teacher in 300 minutes in a classroom to change something that happens on Sunday while fishing. It's just bizarre.

[Q from audience] Isn't that 0.0033 [1/300]?

[Lindsley]: You're right. I put it there. There's another very common one, right in there. 2..3..it's right in there. That's a full school day. The one I drew, I work a lot with special education teachers, and the one I drew was like the half, the half school day for a morning class with trainable retarded, whatever, which you see, would be right up in there.

[Q from audience] Your record floor is directly dependent on the amount of time spent...

[Lindsley]. Right. And you determine it [tape terminates here].

****End of transcript****

11 Any difference in responding in the presence of different stimuli; in a more restricted usage; a difference resulting from differential consequences of responding in the presence of different stimuli.