

The Dimensionality of Rules and Regulations

Richard Fiene PhD

Penn State Edna Bennett Pierce Prevention Research Center

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I have written about dimensionality in assessment recently (Fiene, 2026) in which I have explored how moving a rule/regulation that deals with teacher to child ratios and group sizes from a static rendering, point in time measurement, to measuring it over time, and finally to infusing quality into the measurement of the interaction. This brief abstract will build off that paper but focus more on the dimensionality domain rather than the resultant assessment outcome and modeling. This dimensionality building should provide licensing administrators, policy makers, and licensing researchers/regulatory scientists a template of how to move a rule/regulation beyond the stagnate promulgation to a more dynamic narrative that is more open ended.

Let's take the rule or regulation for teacher to child ratios which is usually expressed by the maximum number of children of a given age group by the number of teachers/staff needed to supervise the children. It looks like the following: for infants: 4 children to 1 teacher/adult in a particular grouping. The group could just be the same as the ratio or the grouping could be larger with a multiple of the ratio, such as: 8 children with 2 teachers maintaining the 4 to 1 ratio. You get the picture, and the ratios change based upon the age of the children, increasing as the age of the children cared for, such as: 8 preschool age children to 1 teacher/staff.

In most cases, if not all, regulatory compliance was measured by doing an observation of a classroom and determining the number of children and teachers and coming up with the teacher to child ratio. This would be part of a licensing inspection. Generally, it would be done once or twice during a visit but it was not taking into account the time element to determine if these ratios held for the full day. It was a point in time measurement, a cross-section, not longitudinal in any fashion. This I am calling one-dimensional assessment (1D).

The next level of assessment is what I have been calling two-dimensional (2D) or the contact hour (CH) metric. At this level, rather than just observing the number of children and teachers in a static fashion; a series of questions are asked to determine if throughout the day there are sufficient teachers for the number of children currently present to be cared for. It is a more dynamic form of measurement taking time into consideration. Dependent upon the answers to the 6 questions posed to the program, regulatory compliance can be determined by calculating the relative area of the contact hours and if the program is over-capacity, at capacity, or under-capacity. This 2D contact hour metric is much more dynamic than the 1D static point in time measurement. However, it tells us nothing about the interaction that is going on between the teacher and the children other than the children are being supervised by a specific teacher(s). What is needed is a 3D assessment that says something about the strength/adequacy of the level of interactions between the teacher and children.

This is where the CH+ or contact hour enhancement (a 3D assessment) comes into play in which specific quality elements that measure the quality of the interaction between the adult(s) and children is assessed. For example, does the interaction between the child and teacher go beyond being custodial and is warm and loving, enriching, language based and cognitive stimulating where the adult responds to the child based upon their needs and not a prescribed curriculum. This is when the adult and child move from just standing around observing each other to a real dance where each move in unison with the teacher taking the lead from the child. Dimensionally very different from the level 2D interaction.

So, the question becomes for human care licensing, are there other rules/regulations that fit this type of template where one can build from 1D to 3D and really infuse quality into the rule. That is a self-reflection we should all take seriously in determining which rules/regulations are critical to a child's development and which are not.

References

Fiene (2026). *The Architecture of Regulatory Excellence: A Three-Dimensional Analysis of IRF and CH+ Mathematical Modeling*, Research Institute for Key Indicators Data Lab, Penn State, Unpublished manuscript.