

**Size, Quality, and Cost of Residential Settings:
Policy Analysis of Literature and Large Data Sets**

Submitted to:

Michigan Association Of Community Mental Health Boards

- and -

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Mental Health & Substance Abuse Administration
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Executive Summary

This Policy Report is a summary of scientific evidence bearing on one issue:

What impact does bed size of a group home have on quality of life and cost?

Aspects of quality of life¹ and costs are both considered. We consider several kinds of data, including research literature from several fields and new research. The result of this multi-perspective approach can be considered a form of “meta-analysis” – an attempt to synthesize information from many sources to shed light on a single question.

The issue has risen to prominence many times over the past century, and this time it is primarily because of the poor economy that took hold at the end of the first decade of the 21st century. Policy makers nationwide, and in Michigan, seem to believe that putting people with intellectual and developmental disabilities into larger and larger group homes will save money - with no major decline in quality.

Is this true? The question is explored in this paper, through three general methods:

1. Theoretical review of the concept of “economy of scale” from economics
2. Reviews of related scientific literature from Sociology, Organizational Psychology, Education, and Developmental & Intellectual Disabilities
3. Analyses of some of the largest quality of life and cost databases in the field of developmental and intellectual disabilities.

This is a very important question at this time in our history. The pressures to achieve economies are enormous. The purpose of this Policy Report is to assist policy makers in wrestling with this very difficult issue – knowing that one size can never fit all, that variety and choice of kinds of settings are important, and yet to approach the question from the “meta” perspective – other things being equal, and on the average, is it wise to increase group size in residential settings?

¹ Quality of life is composed of a complex of factors, such as comfort, freedom, good relationships, wealth, and security, that combine together in different ways and different priorities for different people. There is no single definition that satisfies all. Quality of life is best thought of as multiple dimensions of qualities of life. Many dimensions must be measured so that interested parties can draw their own conclusions about which qualities and which tradeoffs are “most important” to them. This is the strategy employed in this and related papers, e.g., *Conroy, J. (1986). Principles of quality assurance: Recommendations for action in Pennsylvania. Philadelphia, PA: Temple University Developmental Disabilities Center/UAP.*

The scientific literature review began with a thorough review of four kinds of scientific literature that was conducted in 1992.² These reviews were then updated with more recent quantitative (data-based) studies and findings, bringing the state of knowledge up to the present.

The quantitative analyses were made possible by the fact that the author of this Policy Report has conducted some of the largest and longest lasting studies of quality of life, costs, and outcomes in the field of intellectual and developmental disabilities. Most of these databases had never been specifically analyzed to explore the relationships between the size of community residential settings and their quality. Old analyses from the National Consumer Survey, the Pennhurst Longitudinal Study, and the Connecticut Applied Research Project were reviewed and refined based on the most recent analytical approaches. Then large data sets from California, Indiana, Michigan, Oklahoma were analyzed for size effects for the first time. In addition, recent analysis performed by the National Core Indicators project, now the largest national database on quality in developmental disabilities, is included.

For the purpose of this Executive Summary, here is what we can learn from the sources above in bullet form.

- **Very Large Settings (Institution versus Community):** This issue is regarded as “settled science.” From the 1909 White House Conference on Care of Dependent Children to the deinstitutionalization movement of the latter half of that century, we now know that very large settings, whether they are called orphanages or developmental centers, are not optimal places for people to grow, learn, and socialize. The largest settings are portrayed in the developmental disabilities literature as the least cost-effective, as well. The economy of scale argument is compellingly refuted³ by the decades of scandals, evidence of poor quality, and the high cost of large institutions.
- **Economy of Scale:** Policy makers have often remembered the economy of scale phenomenon from elementary economics, but have not remembered the ‘next page’ of the textbooks – which described diseconomy of scale. Organizations that become too large show drop-offs in quality and productivity. This inevitably will happen in human residential groupings as

² Conroy, J. (1992). *Size and Quality in Residential Programs for People with Developmental Disabilities*. A Dissertation Submitted to the Temple University Graduate Board in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy. Philadelphia: Temple University.

³ At least in part – for the comparison of very large to very small – but this Policy Report goes on to analyze outcomes and cost-effectiveness within the small range, usually called “community living” realm.

well. Given the national rejection of the very large scale groupings, i.e. institutions, the question becomes where the diseconomy of scale sets in within the range of 1 to 10 people receiving supports in a home. Literature evidence appears to imply that the turning point is around 4 people – going above 4 is not beneficial, and beyond 6 is sharply negative. New research analyses performed for this Report support this inference rather strongly.

- **Sociology:** Group sizes above roughly 4 to 6 people tend to show losses in individual participation, effort, communication, and satisfaction.
- **Organizational and Industrial Psychology:** The entire notion of Economy of Scale in industrial production is questioned, the application of industrial models to human service processes is challenged, and the evidence in favor of small groups for both productivity and member satisfaction is strong. Studies support the sociological evidence that group sizes are ideally kept small, meaning in the range near 5 people. With more people than that, diminishing returns set in.
- **Education and Classroom Size:** Class size in the range 15 to 40 students has some impact on their achievement, but it is quite small. Size in that range has a much larger impact on qualitative measures like enjoyment and morale. Large effects on student achievement are found only when the instructional group size shrinks to the very small, below 10 students. The truly dramatic benefits are only seen at the level of 1 to 3 students, which is more like tutoring situations, and appears to be explained by the heightened frequency of one to one interactions. This finding from more than 100 years of research, and hundreds of studies, merits very careful consideration for policy concerning residential program size – particularly if learning and behavioral development are desired outcomes of residential programs.
- **Analyses of the Largest Data Sets in the Field of Developmental and Intellectual Disabilities:** By combining old data with newly analyzed recent data, the pattern of declining quality with increasing size of community homes becomes more clear. Increasing the size of group homes is associated with considerable risk of losses in many dimensions of quality. The decline begins at 4 residents and above; beyond 6, the decline is sharper.
- **Money:** By simply looking at the average cost per person of community homes across the large data sets, we find only weak and conflicting evidence that making homes larger results in savings.⁴ In the broad view, the conclusion is the exact opposite. The largest settings are, in fact, the most expensive human services in human history. In this Policy Report, we show

⁴ This is a question that requires further study, however, because the kind of people assigned to larger and smaller settings tends to vary somewhat. This may complicate the cost findings.

evidence that, even in the range below 10 people in a home, the larger settings do not consistently show cost savings.

For policy makers and advocates in the field of developmental and intellectual disabilities, what is learned from the current state of the literature and most recent science strongly supports a few fairly simple conclusions:

Other things being equal, smaller homes are associated with higher qualities of life and better outcomes.⁵

The evidence that systems can ‘save money’ by putting people into larger group homes is extremely weak, and the common interpretation of ‘economies of scale’ has consistently neglected to include consideration of ‘diseconomies of scale.’ Moreover, careful review of decades of studies on the economy of scale arguments in industry and sociology strongly lead to doubt about the original assumptions of higher productivity in larger organizations.

There is no consensus on what constitutes the optimal number of people in a residence, but across an extraordinary variety of states and systems, qualities of life and outcomes drop measurably when there are 5 residents, and drop sharply when there are more than 6 residents.

⁵ Some of the qualities of life and outcomes treated in the present research are individualized treatment, opportunities for control over one’s own life (with support as needed), person-centered planning, physical quality of the home, integration, friendships, comfort, lack of loneliness, services delivered for specified needs, achievement of individual goals, and self-reported qualities of life.

The Notion of Economy of Scale

There is a great deal of pressure, during the current hard fiscal times, to move people with intellectual and developmental disabilities into larger and larger homes to save money. A great deal of the pressure to do this arises from the idea that it would be more “efficient.” The notion of “Economy of Scale” is at the core of this kind of thinking. This is an idea from economics that is present in every elementary textbook. Unfortunately, the Economy of Scale idea is only half of the true picture – the other half is Diseconomy of Scale, which has usually been forgotten or ignored by proponents of larger settings.

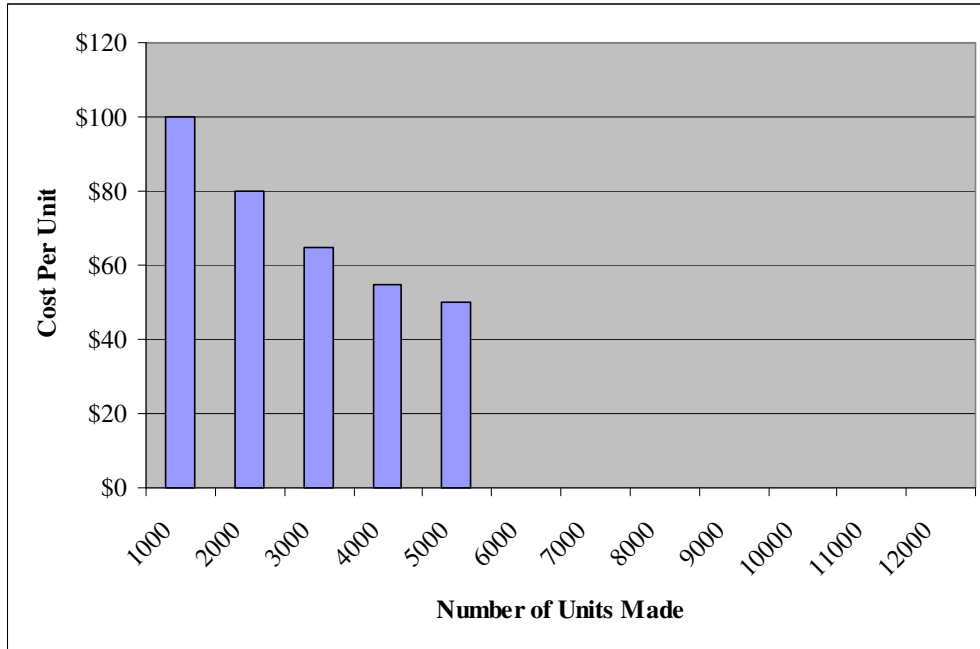
The idea of Economy of Scale comes from the original ‘assembly line’ innovation of industrial production. The bigger the plant, the greater the ‘per-worker’ productivity was the belief – because bigger plants could keep all the resources for allied and ancillary needs in one place – instead of having separate administrative units and support operations for many small and separate units.

This kind of thinking helped create America’s movement toward large scale institutions. Samuel Gridley Howe, who brought the model of a self-sufficient agrarian community (the original institutional model) to America in 1848, said soon after seeing the fruits of his innovation,

As much as may be, surround insane and excitable persons with sane people, and ordinary influences; vicious children with virtuous people and virtuous influences; blind children with those who see; mute children with those who speak; and the like.

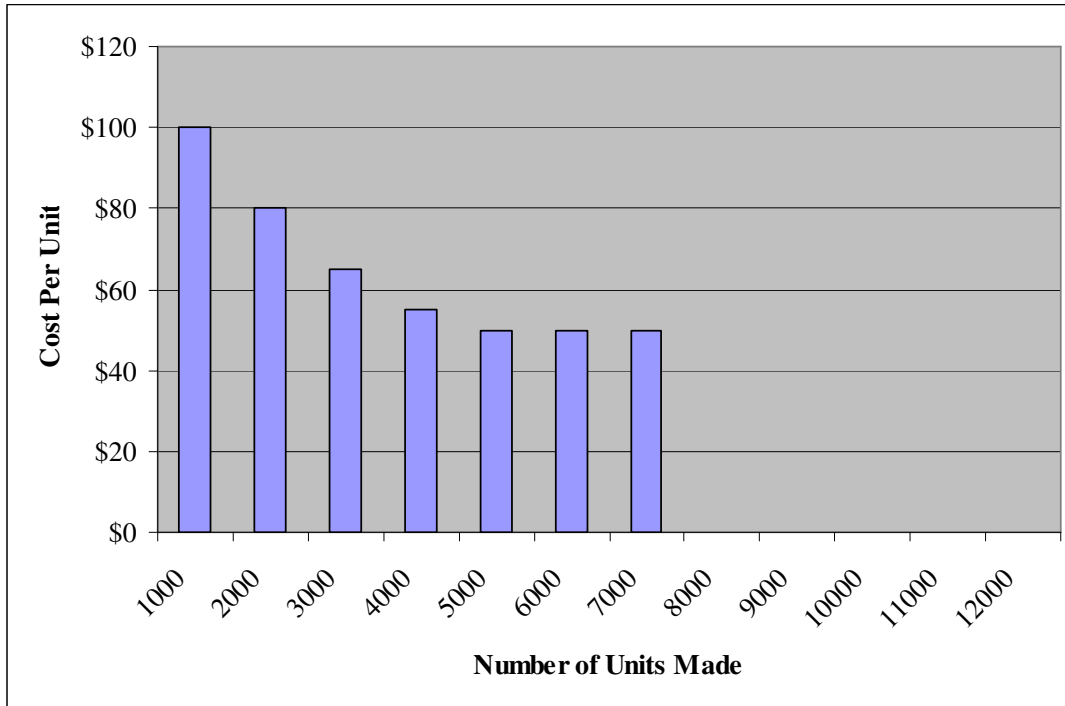
People run counter to this principle for the sake of economy, and of some other good end, which they suppose cannot be had in any other way; as when they congregate the insane in hospitals, vicious children in reformatories, criminals in prisons, paupers in almshouses, orphans in asylums, blind children and mute children in boarding schools. Hence I begin to consider such establishments as evils which must be borne with, for the time, in order to obviate greater evils. I would take heed, however, against multiplying them unnecessarily. I would keep them as **small** as I could. I would take the most stringent measurements for guarding against those undesirable effects which lessen their usefulness; and for dispensing with as many of them as may be possible.

The general theory of Economy of Scale is simple. As the size of an organization increases, the ability to keep administration centralized will cause higher productivity per worker per hour. In graphic form, it looks like this:



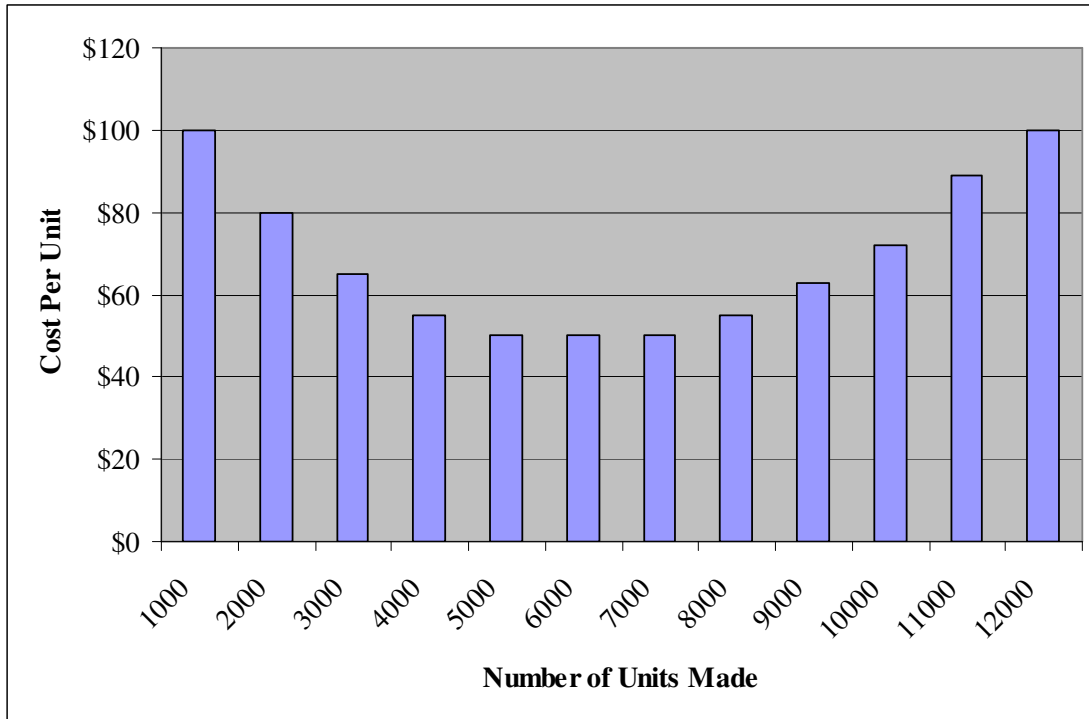
The graph shows the “Cost Per Unit” going down with the size of the operation – the total number of units manufactured. This was part of Henry Ford’s greatest innovation with the ‘assembly line’ concept. Efficiency was the goal.

Of course, there had to be a limit to this gain in efficiency with size. That limit was called “Diminishing Returns” in many textbooks, and it looked like the graph below – as the size of the operation got even bigger, there were no further gains in efficiency.



As the size of the operation increased to higher levels, the Cost Per Unit stayed the same. This ‘leveling off’ of the theorized gains with size was the point of Diminishing Returns.

What is forgotten by most policy makers in the human services is that the economists long ago realized that there is also “Diseconomy of Scale.” When organizations become too large, inefficiencies set in. This phenomenon is the subject of a very large literature in economics, reviewed in Appendix B of this Policy Report, but the salient point is that organizations that become too large not only lose the theorized Economy of Scale – they go the other way – into Diseconomy of Scale. That situation is graphically represented below.



When an organization gets too big, its efficiency suffers. On the right side of the graph, cost per unit goes right back up to where it began, when the organization gets bigger.

According to Shumacher (1973), that is a natural part of the ecology of organizations – and when they reach such counterproductive sizes, they tend to break up into smaller subunits.

Because the current fiscal climate drives policy toward economy, it is essential to know whether larger residential settings will indeed lead to cost savings without major losses in quality of life. The simple pattern of Economy of Scale, followed by Diseconomy when groups become too large, strongly suggests that homes for people with intellectual and developmental disabilities might fall into diseconomy if made too large. The question has become: Where is that point in size, beyond which quality may be impaired and costs may begin to rise back up?

The research literatures from Sociology, Organizational Psychology, and Education all shed considerable light on this issue. From multiple perspectives, the optimal size of human groupings tends to converge in the region below 10 people for most, if not all, important functional tasks. The latest literature in intellectual

and developmental disabilities on the issue of size, plus the new analysis of the largest databases, supports those perspectives.

The Group Size Issue in Sociology

The review of sociological interest and research shows that questions about group size have been a major concern in the development of modern sociology. Beginning with Simmel, continuing right into the content of the most recent introductory textbooks, and covering nearly 100 years, it is clear that group size has been a major concern of sociologists. The scientific evidence about group size and group effectiveness gives a complex picture, probably because of the many and varied approaches to measuring effectiveness. However, a consensus from the sociological literature does seem to emerge: human beings tend to prefer to live, work, and play in small rather than large groups. The preferred group size is clearly below 10 people, but beyond that, the evidence is not yet conclusive.

This sociological tradition and interest in group size is in some ways to be quite relevant to the issue of residential program size. In particular, these findings suggest useful insights into the question of group homes for citizens with disabilities, in that within the small group size range, as size increases,

- People spontaneously interact in very small groups, mostly dyads or one on one (as in the direct observation of natural interactions research of James)
- People spontaneously subdivide their groups, rarely allowing them to exceed 5 or 6 people (as in the party situation studies of Simmel)
- Participation via individual effort tends to decrease in a phenomenon often called 'free riding' (as in the tug of war studies of Kohler)
- Participation via communication tends to decrease and centralize, relying on increased leadership by the few, but allowing anonymity and silence by the many (as found by Bales et al.)
- Authoritarianism increases from group size four to eight, correlating with the emergence of leadership and of members becoming passive followers (in the work of Carter et al.)
- Satisfaction with group process may reach a 'saddle point' around five people (as in the famous and influential work of Slater)
- Satisfaction with group process falls off in groups above five, and keeps falling lower into the teens, where it levels off at a low state
- Increasing size is related to formalization, rulemaking, regimentation, bureaucratization, and decreases in personal relations (discussed by Clegg & Dunkerley)

Applying these sociological findings to the world of residential programs implies that small numbers of residents are beneficial to the quality of life and interactions of individuals. However, there is insufficient evidence to draw conclusions about specific sizes of homes that are 'too big.' And, as is obvious from the beginning, there really cannot be an optimum number for all groups and all kinds of people. One size will never fit all. Nevertheless, our effort here is to think in policy terms, covering thousands of people, in thousands of homes, and considering the averages of well being and quality across them. With that perspective, the sociological body of knowledge suggests that there is probably a natural human break point somewhere between four and six people in a home. Group sizes that big can be tolerated, and can sometimes be effective and/or satisfying – but where there are more people than that, the most desirable qualities of intimate and rewarding human interaction are lost.

The Group Size Issue in Organizational and Industrial Psychology

Until the 1980s, the study of size and effectiveness in the organizational research literature was somewhat chaotic, and very difficult to interpret. In 1985, Gooding and Wagner reviewed the relationship between size and performance of organizations and their subunits. Gooding and Wagner screened nearly 200 published studies, and selected 31 that met consistent methodological criteria. From these 31 studies, they attempted to find an interpretable pattern. The remainder of this section is a review of their conclusions.

Gooding and Wagner noted that three kinds of scientists had been at work on the question:

1. Industrial-organizational economists had approached it through examination of organizational economies of scale. Most often, these analysts were searching for the size of organization or unit that would optimize the cost per unit of production. Findings in the literature were inconsistent.
2. Many, but not all, organizational theorists also approached the problem with an inherent belief that organization size would be associated with significant economies of scale. Others emphasized the ability of larger organizations to exert more control over the sources of resources. This and related perspectives predicted that larger organizations would produce more, but not necessarily more per worker.
3. Social psychologists approached the problem largely from the group, rather than organizational, level, and often reported an insignificant relationship between group size and indices of effectiveness, but sometimes reported decreasing effectiveness with increasing size. These analysts frequently hypothesized "free riding" as the culprit (in which group members, relatively anonymous in larger groups, could slack off with no one noticing), and also higher coordination costs with larger groups.

These three kinds of scientists had been approaching the question with different definitions and measurement techniques. Gooding and Wagner suggested that the reason the literature was confusing and often contradictory was that different kinds of scientists had been defining and measuring things differently. Gooding and Wagner specified three dimensions which had varied across studies:

1. The **LEVEL OF ANALYSIS**. Some studies had examined entire organizations, while others had analyzed subunits within large organizations.
2. The **PERFORMANCE MEASURE**. Some studies had used key informant ranking, others used organizational records, and others used physical output. Most importantly, some had used absolute output and others had used relative output (i.e., output per unit of size), potentially a very important difference.
3. The **SIZE MEASURE**. Some investigators had operationalized the size variable as the number of employees, others as the number of beds in a hospital or like facility, others as financial assets, and other as the magnitude of output transactions such as sales or number of clients served.

Gooding and Wagner concluded that these three variations could explain a major proportion of the differences across the studies. Employing a form of meta-analysis, as improved by Hunter, Schmidt, and Jackson (1982), Gooding and Wagner categorized each of the 31 studies according to the level of analysis, the performance measure, and the size measure. Their conclusions were clear:

1. Studies that used the organizational LEVEL OF ANALYSIS found that larger organizations were more productive in absolute terms, but not in ratio terms. That is, larger organizations produced more units, but did not produce more per worker. Gooding and Wagner concluded that there was actually no evidence for economies of scale in terms of worker efficiency. This finding was consistent across a variety of SIZE MEASURES.
2. Studies that used the subunit LEVEL OF ANALYSIS showed a negative relationship between size and productivity, both for absolute and relative measures of performance. This also held true across studies using a variety of SIZE MEASURES.

The group home size question is at the subunit LEVEL OF ANALYSIS. The typical situation is that a private service provider corporation operates several group homes. Thus each group home is a subunit of the larger organization. The group home PERFORMANCE MEASURES are related to the quality of life of the individuals in the group homes, and are therefore best thought of as efficiency measures. For example, growth in adaptive behavior/independent functioning per unit of staff time or per dollar would be useful measures of performance. The SIZE MEASURE in the group home situation is simple: the number of people living in the home.

According to Gooding and Wagner's meta-analysis, then, we should expect to find smaller group homes producing more positive outcomes.

The organizational literature reviewed here includes more than 100 pieces of primary research. From them, no clear consistent pattern of the organization size and effectiveness relationship emerged, until the meta-analysis of Gooding and Wagner (1985). They showed that prior studies had varied in their levels of analysis (organization or subunit), their performance measures (absolute or relative), and their size measures.

When these were examined via meta-analysis, a clear pattern did emerge. This pattern called the entire notion of Economy of Scale into serious question.

Whether approached from the perspective of the organization or the subunit, when confounding variables were controlled, larger organizations and larger subunits did not produce more per worker.

The contribution of Schumacher, in “*Small Is Beautiful: Economics as Though People Mattered*” is considerable in the present context. While Gooding & Wagner’s brilliant meta-analysis brought order to the study of organizational size, it also called the traditional Economy of Scale assumptions into very serious question. At the same time, Schumacher was calling for consideration of outcomes other than economic. Our concern in the human services is precisely suited to this refreshing new perspective – and it came along at the same time that even the most rigorous scientists were questioning whether larger plants really produced more widgets per person per hour. Perhaps our assumptions about size and Economy of Scale, so easily imported from industry into the human services, were dangerously misleading.⁶

The organizational goals of group homes for people with intellectual disabilities are fundamentally human, not financial. They are primarily concerned with the quality of life experienced by the people who live in them.⁷ Quality is multi-dimensional; it has dozens of aspects. Among them are developmental progress toward increased independence and socially appropriate behavior, integration, relationships, opportunities for choicemaking, satisfaction, individualization, services and supports intensity, attainment of individual goals, normalization, health, safety, and physical comfort. Hence indicators of each of these organizational goals must be explored. If the analyses are done properly, the quality and outcome indicators are likely to turn up to be strongly related to size, if the literature from organizational and industrial psychology is any guide.

For this Policy Report, we performed exactly that kind of analyses, across many states and many thousands of people in various kinds of homes and service milieus.

⁷ And the direct support people who work in them – good research must take both into account as a synergistic and mutually reinforcing system.

The Group Size Issue in Education: The Class Size Debate

Just on the topic of academic achievement, illustrating the degree of conflict in 100 years of study of this issue, Slavin (1989) wrote:

The search for substantial achievement effects of reducing class size is one of the oldest and most frustrating for educational researchers. The search is approaching the end of its first century; eventually, it may rival the search for the Holy Grail in both duration and lack of results. (Page 99.)

The situation had been substantially improved by application of the method called “meta-analysis,” which means rigorously pooling the findings from a lot of studies, weighting them by how well they were designed, and coming up with the best summary of all of them put together. Glass and Smith (1978) produced the first such analysis. They performed a meta-analysis on the outcomes of 77 studies that included 725 comparisons of student achievement between smaller and larger class sizes. (Glass was, in fact, in the process of creating the concept of meta-analysis while working on the class size literature.) In sharp contrast to past narrative reviews, which had seen the literature as internally inconsistent and inconclusive, Glass and Smith’s meta-analysis came to the relatively clear conclusion that smaller classes were associated with superior achievement outcomes.

Cooper (1989) suggested caution, coupled with a firm conviction that the weight of the evidence was on the side of smaller classes:

Reviewers of the class size literature disagreed over whether a reduction in instructional group size has its intended effect ... However, some consensus did emerge ... Reduced class size appeared to be most efficacious with low-ability or disadvantaged students when reductions were in the range typically associated with Chapter 1 programs. Such reductions may not only lead to higher achievement but to better student and teacher attitudes and morale and to an enrichment of the core curriculum. (Page 98.)

Slavin (1989) was skeptical, and did the entire meta-analysis over again, calling his new approach “best-evidence synthesis.” Using exactly the same studies as Glass and Smith, and even their own tables, Slavin showed that the average effect of the smaller class size on achievement was no more than about 13% of a standard deviation. In statistical terms, that is a very small effect.

Equally interesting, multiyear studies showed that initial gains faded after a year or two, suggesting that smaller class sizes might have, not only small benefits, but temporary benefits as well. The studies in his analysis reduced class sizes from an average of 27 to 16 students. Yet the effects were very small indeed. In trying to

explain why this might be so, Slavin's strongest suggestion was that "*teachers' behaviors do not vary very much with size of classes.*" The implication was that behaviors might change slightly, but in the size range of real world classrooms, teachers really did not markedly change how they taught students whether they had 16 or 27 in their class.

Most importantly for our current concerns about residential homes, Slavin also showed that the major educational effects, even in Glass and Smith's own tables, occurred in the very small "classes" of size 1 to 3. From that, Slavin inferred that class size was the wrong focus for those concerned with national policy. For students such as those served by Title 1, what would be most beneficial was not smaller classrooms, but individual or extremely small group tutoring. This may be a key finding for the search for quality in residential settings for people with intellectual and developmental disabilities: we need to aim above all for situations that support frequent one-to-one interactions.

But academic achievement, while it is the primary purpose of schools, is not everything. Slavin made a major concession when he mentioned factors other than achievement:

Of course, it is important to note that reductions in class size do seem to have significant effects on other variables, such as teacher and student morale (Glass et al., 1982). Reducing class size may be justified on morale and other quality-of-life grounds. However, as a means of increasing student achievement, even substantial reductions in class size have little apparent impact.

It is most intriguing that Slavin, who so strongly believes that the achievement claims are nonsense, is willing to consider the notion that smaller class sizes produce other kinds of significant benefits. He admits that the evidence is fairly clear that people like smaller classes better. They are happier in them. The quality of life may be superior in smaller classes. This may be an important clue for the present effort, which is concerned with quality of life as much as behavioral outcomes.

Moreover, Slavin agrees that the evidence supports a notion that size may become very important when class size drops to three or fewer, a conclusion that may be highly related to group home models. Pennsylvania limited group home size to three people for more than 20 years, but then began to approve larger ones – with quality impacts that have been widely suspected, but not studied with rigor.⁸

⁸ Personal communication with leaders of three provider agencies, 2007.

In summary, the classroom size literature achieves consensus about only four findings: (1) smaller classes are usually found to be related to slightly better student achievement, but mostly in the lower grades; (2) smaller classes are consistently found to be “better” in terms of indicators of quality other than student achievement such as satisfaction and morale; (3) large differences in achievement and qualities of schooling are not found until class size drops below 10 students; and (4) dramatic improvements in student achievement are only found in the extremely small “tutoring” situations in which a single teacher is alone with just one or a very few students.

This fourth finding parallels a conclusion from the intellectual disabilities literature, that the best results come from situations in which single support workers are alone with a very small number of people.

The Group Size Issue in Residential Programs for People with Disabilities: Literature Review

This section provides a chronological review of the research concerning the size and quality of residential settings in the field of intellectual and developmental disabilities.

Klaber (1969) was among the first to suggest that setting size might be related to quality. He studied institutional settings in Connecticut, and concluded that living unit size was more influential than overall staff ratios in promoting quality. He suggested that 1 aide for 10 residents would result in much higher quality than 10 aides for 100 residents.

The next explicit treatment of the size issue in the intellectual disabilities field was that of King, Raynes, and Tizard (1971) in England. They developed a scale to measure the degree to which daily life was regimented and institution-oriented, as opposed to individualized and person-oriented, called the Resident Management Practices Inventory.⁹ They applied the scale to mental deficiency hospitals (bed sizes from 121 to 1650), voluntary homes (bed sizes from 50 to 93), and group homes (bed sizes from 12 to 41). They found care practices to be more person-oriented in the smaller facilities. However, within any of the three types of facilities, size was not found to be significantly related to the quality indicator.

Their overall conclusion, which probably confused the size issue for years to come, was: “*Our hypothesis that management practices are not effected [sic] by institutional size was confirmed*” (p. 184). What they meant to say was that the smaller types of facilities were always better than the larger types. Within a type, though, size did not matter; a 121 bed institution was just as regimented as a 1650 bed institution.

Advocates and program designers were already issuing opinions about optimal size. Bedner (1974), writing from the experience of programs in Denmark, Sweden, and Holland, wrote that:

“The retarded person needs a small number of interpersonal relationships so that those relationships can be accepted as positive stimulation ... The sizes of group homes for children should be from four to six residents ... For adults, the same principles apply. Group homes should be of either three to four or seven to eight persons, but no larger.” (p. 33)

⁹ Several research groups are still using derivatives of this scale.

In 1974, Harris, Veit, Allen, and Chinsky (1974) performed studies in one large institution, using direct observation of staff-resident interactions. They started out with an interest in the impact of staff ratio on the amount of direct nurturing interaction between staff and residents. Surprisingly, they found essentially no differences across wards with widely varying ratios. Generally, aides did not interact very much at all with the people living on the wards; moreover, *when the investigators actually added another aide to several wards, the people living there experienced absolutely no increase in interaction. The staff did, however, interact with each other a lot more.*¹⁰

Harris et al. did find one condition which was consistently associated with higher quantity and quality of interactions: when staff people were alone, working with a small group of consumers. They suggested that large wards should be broken down into smaller units, each staffed by a single aide. They speculated that creating small family-like living units within institutions of whatever size would create higher quality care. Interestingly, this is in effect what happens in small group homes.¹¹

Balla (1976) attempted to summarize the state of knowledge about the relationship of institution size to quality of care by reviewing the literature. His review relied heavily on a cross-cultural study (McCormick, Balla, & Zigler, 1975) that used the same measure of quality as King, Raynes, and Tizard (1971), and that obtained similar results. Balla concluded:

In summary, it seems that from the studies concerned with what may be called the quality of life dimension, care is more adequate in smaller community-based institutions, especially in those under 100 population. However, the number of studies upon which these conclusions are based is small indeed. In addition, the literature reviewed provides almost no indication of an answer to the critical question of whether there are structural aspects of large institutions that tend to coerce practices leading to poor quality of care. The most appropriate conclusion from this literature review would seem to be that the data base is far too scanty at this time to construct a social policy based on empirical evidence.

Balla's work considered only institutions – in no way did it compare quality in institutions versus small community settings. Although Balla found weak evidence that the quality of life in smaller institutions was better than larger

¹⁰ This finding, that adding staff did not add quality interaction with residents, was parallel to Kohler's 1927 findings in the Tug of War experiments – adding pullers to Tug of War teams did not add the full strength of the new person, because the other team members tended to relax slightly when new members joined the team.

¹¹ This, in turn, relates to the Class Size finding that the large education achievement gains only occur in the smallest groups sizes – 1 to 3 – more in the nature of tutoring, with one to one interaction most prominent.

institutions, his work shed no light at all on the issue of very small or family scale community homes.

O'Connor (1976) took the next step, and did compare smaller homes to the larger institutions. Analyzing data from a national survey of community living situations, O'Connor reported that homes with fewer than 20 residents were more "normalized." In contrast to homes serving more than 20 residents, there were fewer security features, personal effects were more visible in peoples' rooms, and there was greater privacy. "Size" was the only factor that distinguished those group homes which were considered "normalizing."

Heiner and Bock (1978) were the first to attempt to relate setting size to individual behavioral growth and development. Using a large data base on Minnesota's group homes, all certified as ICFs/MR, they tested whether size made any differences in developmental growth, residential stability, and costs. They used data on 163 people from 1975 and 1976. The 250 people were living at 18 group homes, for an average size of 14 people. There were 4 homes of size 6, 8 of size 8, and 5 of size 15.

The behavioral measure was the Minnesota Developmental Programming System (Bock, 1974), a well known scale with inter-rater reliability of .84 and test-retest of .94. The best developmental progress was seen in the 8 bed homes. However, that finding may have been related to the fact that 5 of the 8-bed sites served young children, and their progress was much greater than that seen among the adults in all the other homes.

The authors checked these results against formal reports of functional improvement maintained by the Department of Health. Their data base included 141 people in 5-10 bed homes, 192 people in 11-16 bed homes, and 86 people in 20-26 bed homes. The data showed that people in facilities larger than 20 exhibited less progress than the other two groups. Reported progress in personal hygiene and emotional behavior was slightly higher in 11-16 than in 5-10 bed homes, and progress in communication was highest in the 5-10 bed homes. These differences were small and no tests of statistical significance were reported.

Heiner and Bock detected no variation in residential stability by size. They also performed multiple regression analyses on cost, individual, and programmatic data. They reported that group home costs did not vary systematically by size.

From the various threads of evidence, Heiner and Bock concluded that *“The data support the conclusion that smaller (8 bed) facilities tend to produce positive client changes at a better rate than larger ones; and, do so without significantly higher costs.”*

Heiner and Bock also summarized their impressions of the advantages and disadvantages that might go with small and large group homes. Their impressions came from the small group literature, the organizational effectiveness literature, and their direct experience with group homes.

SMALLER GROUPS (2 TO 10 PEOPLE)

ADVANTAGES

1. Greater actual participation for all members
2. Participation is more evenly distributed throughout the group
3. Evaluated more positively by group members
4. Fewer signs of tensions
5. Less strict conformity to group norms
6. Better performance on basic skills (cognitive and sensorimotor) as a result of small group instruction
7. Better performance on conjunctive tasks
8. Higher staff expectations
9. Greater opportunity for people with intellectual disabilities to model normal staff behaviors

DISADVANTAGES

1. Limited human resources
2. May be more expensive in terms of maintenance costs

LARGER GROUPS (10 TO 20 PEOPLE)

ADVANTAGES

1. Greater number of human resources
2. Increased problem solving ability
3. Greater opportunity to meet attractive others
4. Better performance on additive and disjunctive tasks
5. Greater anonymity for shy individuals (this could also be considered a disadvantage)

DISADVANTAGES

1. Organization may be a problem
2. Subgroups are likely to form causing greater potential for conflict
3. Relatively fewer members participate. The group is often dominated by one or a few powerful individuals
4. Strict conformity to normative group pressures is more likely
5. Organizational and interpersonal effects may interfere with the effective use of resources
6. Disciplinary control is exercised more often

Raynes, Pratt, and Roses (1979) reported that the presence of more than one staff person on a residential unit systematically decreased the frequency of

informative remarks to consumers. They suggested either very small settings or settings with very small subdivisions, as did Balla (1976).¹²

Landesman-Dwyer, Sackett, and Kleinman (1980) studied the effects of size in group homes in the state of Washington. Clearly skeptical of the claims that “small is good,” Landesman-Dwyer and colleagues conducted direct observation studies of 240 people with intellectual disabilities, and of 75 staff members, in 20 group homes. The people were relatively highly capable, in that only 20% were labeled severely or profoundly retarded. The smallest group home had 6 people, and the largest had 20.

The authors found that staff behavior was much the same across all sizes of home. This was a surprising finding, because the smaller homes had significantly higher staffing ratios. However, their finding corresponds to the earlier Harris et al. (1974) research. Enriching the staff ratio does not seem to lead to more teaching, nurturing, or interaction with the people in the home.

Resident behaviors did vary somewhat with size, but Landesman-Dwyer et al. concluded that most of the differences were either unimportant or explainable from things other than size. One difference they did emphasize was the people in larger group homes engaged in more social behavior by “about 4 to 5 percent” than did those in smaller homes. The people in the large group homes interacted with more peers, were more likely to have a “best friend,” and spent more time with their best friends than did people in smaller group homes. These socially oriented findings mirrored their findings reported a year earlier from a different study (Landesman-Dwyer, Berkson, & Kleinman, 1979).

Landesman-Dwyer et al. concluded: *“We did not find evidence of any dramatic effects of group home size in community based facilities that ranged from 6 to 20 residents. Social relationships did appear significantly enhanced as the number of peers increased, suggesting that extremely small group homes may be socially limiting.”* This article was then criticized by advocates of smaller settings from a variety of perspectives, primarily that the range of sizes excluded the family-like settings being developed widely in many states – that is, below size 6.

Baroff published a review article in 1980, which examined the same literature reviewed by Balla (1976). Baroff reached conclusions quite different from those of Balla. First examining the class of studies he called “resident-

¹² This finding paralleled findings from the Tug of War and other organizational psychology studies.

oriented versus institution-oriented care practices” studies, he noted that “*What we have then is the curious finding that size is and is not important.*” He was referring to the fairly consistent finding that size made a difference between types of settings, but not within.

Baroff re-examined the finding of Klaber (1969), that a 1 staff to 10 residents ratio was inherently better than 10 to 100. Baroff suggested that it might be most reasonable to admit outright that this was exactly what small community settings accomplished. Furthermore, he questioned the then-common thinking that the smaller groupings should be achieved simply by subdividing existing institutions. Baroff claimed that this would still keep people isolated from the rest of society, and that would not be in keeping with modern values, particularly integration.

Baroff expressed the opinion that the small residential facilities offer individualization possibilities which are inherently more difficult to realize in larger group care settings. He also suggested an inherent difference in the way caregivers view their roles: “*The institutional attendant is commonly one of a large number of employees. He sees other attendants come and go and this conveys to him his own sense of interchangeability. He does not, in fact, have the same degree of personal responsibility for the residents in his care as the foster or group home parent*” (p. 114).¹³

Baroff’s summary of the second type of literature, that which relates size to behavioral growth and development, was simpler than Balla’s:

The current literature consists of eight studies which relate behavior to size. Seven of them show some advantage to the smaller setting and one shows no difference. None show any advantage to the larger ones.

Baroff’s overall conclusion was also simpler than Balla’s:

It does seem that size makes some difference. Smaller residential settings, typically serving not more than 10 persons, can necessarily be more responsive to individual needs. Moreover, their location in normal community residential neighborhoods allows for easy access to the range of community experiences that can enhance social, vocational, and recreational skills and can foster greater independence. These same experiences are much more difficult to provide in the more physically isolated and autonomous setting of the large institution.

It is of particular interest that Baroff’s review still gave no guidance about the quality of the smaller settings. He urged that size stay below 10, but that was

¹³ This is clearly related to the sociological finding of increasing anonymity in larger groups, and the organizational finding of the phenomenon of “free riding.”

all. The literature up to this point had nothing to say about quality and size in the range of 1 to 10 beds. No one had compared one versus three, or three versus six, or six versus eight.

However, the earliest suggestions that quality could be enhanced simply by subdividing large institutions into smaller subunits had been strongly questioned. Up to this point, researchers said, there was little support for such a claim – and more importantly, there was a need for more evidence on relative quality within family-scale community homes.

Investigating the quality of staff-consumer¹⁴ interactions in day programs in England, Dalglish and Matthews (1981) found that engagement was likely to be lower in a large room and when a large number of consumers are present, but this was not related to the staff-consumer ratio. The key variable was size itself, not the ratio. They speculated that when two groups of consumers plus their associated staff are placed together, the staff from the two groups will talk between themselves, at the expense of communication directed toward consumers. This finding was, once again, consistent with the 1969 suggestion of Klaber and the 1974 finding of Harris et al.¹⁵ But Dalglish and Matthews further pointed out the disturbing fact that, while many people had moved their homes from institution to community, nearly all of them were spending their entire day in a very large room with dozens to hundreds of other people with intellectual disabilities.

There has been a strong and vocal component of the disability field working to defend large settings – even the very large ones. The “Voice of the Retarded” is the most prominent and influential among them.¹⁶ McCann (1984), a policy-oriented ally of that group, wrote an advocacy document entitled “The Sanctity of Size” for circulation in Louisiana. In it, he strongly questioned the size evidence, although not very thoroughly. It was a direct response to a bill introduced by Senator Chaffee of Rhode Island. The bill contained a provision that group homes receiving federal support could not exceed three times the average family size in the area of service. This would limit group home size to between 9 and 12 people. McCann concluded that there was no hard evidence that size made any difference, no good evidence that community placement was associated with any benefits, and

¹⁴ The terminology used in their article is maintained here for clarity. Modern customs utilize different terminology.

¹⁵ This phenomenon has been reported in this and other literatures frequently. This author has satirically called it the “softball team effect” - meaning that as soon as there are enough staff to form a softball team, interactions with the people living in the home will drop precipitously. At some critical mass point, workers will tend to interact with one another rather than with the people served, many of whom do not use verbal forms of communication.

¹⁶ <http://www.vor.net/about-vor/general-information/why-we-still-use-mental-retardation>

no reason to believe that the quality of care in institutions was anything less than excellent. The document was never published in any book or journal, but it was widely circulated among proponents of institutional care.

Felce, de Kock, and Repp (1986) studied changes in the lives of 12 people in England, 6 of whom moved from institution to small community homes, while the other 6 remained in the institution. The 12 people were the most severely handicapped in the service area. The results included major improvements in the adaptive behavior of the consumers who moved to the community. Results in the community settings also revealed greatly improved staff performance in terms of interacting in positive ways with consumers. The authors wrote,

Life in the small homes was characterized by a substantially greater opportunity to run one's own life. Increased domestic activity and personal and leisure engagement more than doubled nonsocial participation. Considerable staff effort in delivering antecedents and consequences was directed to eliciting such activity levels, particularly among the most handicapped individuals. As a result, social interactions between clients and staff also showed substantial improvement.

The authors commented directly on the size issue, noting the continuing interest of researchers. They found it particularly significant that the small homes had smaller rooms, and more of them, than the institution. The number of rooms tended to favor creation of the situation described by Harris et al. (1974), in which one staff person was alone with just one or a few consumers. They believed the changes could be attributed to this reallocation of staff resources into very small groups, to the material enrichment of the environment and its free accessibility, and to job specifications and staff training. They concluded by restating the fact that these major benefits had been observed in the most severely handicapped, longest institutionalized, people.

Landesman (1987) studied the movement of 147 people from one kind of institutional environment to another. The old settings were traditional institutional wards of 40 to 60 beds, dormitory style bedrooms, open bathing and toileting areas, large common living rooms, and clearly identified staff offices, coffee rooms, and storage areas. The new living units were 14-bed duplexes constructed on the grounds of the institution.

The duplexes had 6 to 8 people on each side. People had "single or double bedrooms, places for their own clothes and personal possessions, and private bathing and toileting areas. Each side had its own kitchen (although meals were prepared in a centralized kitchen), dining area, and small living room. The furniture was more home-like and colorful. On the outside, the duplexes appeared

to be attractive single-story brick homes, identified by numbers rather than names, and surrounded by sidewalks, streets, and yards.”

Landesman’s conclusions were not strongly supportive of a size and quality relationship in terms of staff-consumer interactions:

In the new duplexes where the assigned staff: resident ratios had been enriched considerably, there was no evidence that this led to increased interactions between staff members and residents. In fact, residents actually spent significantly more time totally alone or without any staff person present than they had in the old halls. (p.114)

Other measures, however, more closely paralleled prior research findings:

Management practices in the new duplexes were rated as significantly more resident-oriented versus institutional. Similarly, the Caldwell HOME scores reflected significant, although quantitatively small, increases in stimulation. Despite these important changes, residents’ daily behavior was not affected dramatically.

This article was of particular interest because it was, in essence, a study of the then-current theory that, if small was good, then subdividing a large segregated and isolated institution into smaller subunits should enhance quality of life. These sorts of “make-believe community homes” have been constructed on institutional campuses many times.¹⁷ Landesman’s 1987 study is certainly relevant to the size issue, but what it appears to show is that even size cannot make a definitive impact on quality, if the “homes” are still on the grounds of an institution.

This leads to the somewhat more important speculation that size per se really may not be enough to obtain the full benefits seen in studies of community placement. Genuine community placement includes the important dimension of integration, of being in the presence of people who do not have disabilities. Community placement also includes traveling in the real world, as every person in a group home goes away from the home every weekday, as do most Americans.

In the early part of the Pennhurst Longitudinal Study research,¹⁸ it was found that people living at the institution made significantly more behavioral progress if they attended any kind of day program away from the places where they slept (Lemanowicz, Feinstein, Efthimiou, & Conroy, 1980). The difference was attributed to simple daily stimulation via changes of environmental conditions each day. Generally, at the institution, people who were lucky enough to be in a day activity program would simply walk across campus each day, spend a few hours in

¹⁷ There is one such project under way

¹⁸ Directed by the present author.

planned activities, and then walk back to the residential unit. This simple activity was associated with significantly greater developmental progress – people who had a ‘day program’ gained significantly in self-care and independent functioning abilities, while those with no day program did not make any gains at all.

In community living, however, the daily routine involves more than just a walk across campus. It involves taking a car, van, or bus ride every morning to a day program or employment site. Moreover, the vehicle must travel through the “real world,” rather than the institutional campus. People must see and be seen to some degree by non-handicapped members of the general public. They see other peoples’ homes and staff as they make their rounds. They tend to spend much more time at the day program than they did at the institution. Perhaps these factors, cumulatively, are having the same effect as the simple day activities did at Pennhurst, but more powerfully. It seems reasonable to believe that this more normalized rhythm and routine of daily life, combined with increased stimulation and integrative opportunities, should be associated with enhanced quality of life. The evidence is consistent with such an interpretation.

If this were true, then once again, *size per se* might not be the most important variable. However, the dispersed nature of the community service system, and its use of regular family-size housing stock, forges an inextricable link with size.

More recent literature, however, has significantly changed the picture.

Lakin, White, Hill, Bruininks, & Wright (1990) noted very large differences among states regarding residence size. They found that, although there was an overall trend toward smaller residence size, there was considerable disagreement about the appropriate size range. They were the first to call for a national policy to make community living in small settings more uniformly available across the states.

Burchard, Hasazi, Gordon, & Yoe (1991) examined lifestyle and adjustment in three community residential alternatives. The study included 133 adults with mild and moderate levels of intellectual disability living in small group homes, supervised apartments, and with their natural families. Results of questionnaires and structured interviews with care providers showed that the residence settings supported quite different lifestyles with respect to independence, lifestyle normalization, and integration. The authors inferred that size of the home was one of the important factors in life quality, engagement, and integration.

Felce & Repp (1992) studied the community home model in England. They compared the small home model to institutional settings and larger community units. The small homes were found to produce beneficial client functioning and high levels of staff/client interaction. The paper concluded that interaction effects were possibly more powerful than single effects, thus illustrating the continuing difficulty of disaggregating the impacts of size, staffing, and individual characteristics.

In 1992, this author completed a doctoral dissertation which included size-related analyses of three large databases: the National Consumer Survey (Conroy, Feinstein, Lemanowicz, Devlin, & Metzler, 1990), the Pennhurst Longitudinal Study (Conroy & Bradley, 1985), and Connecticut's CARC v. Thorne Longitudinal Study (Conroy, Lemanowicz, Feinstein, & Bernotsky, 1990). Those analyses revealed strong evidence of a relationship between size and quality, with qualities of life and service falling off significantly above 4 residents, and sharply above 6 residents. That study did not, however, include consideration of costs of care.

Schalock, Lemanowicz, Conroy, & Feinstein (1994) conducted a multivariate study of quality of life among deinstitutionalized people in Connecticut. They controlled mathematically for individual characteristics and other complicating variables, and found that smaller homes in the community were associated with higher ratings of quality. Later the same year, Schalock (1994) gave more detailed findings from the same database, and reported that size was an important variable but the level of residential supervision was not important beyond the simple factor of the size of the home.

Felce & Perry (1995) explored the complex relationships between staffing levels and size of the home, and were unable to uncouple the two factors. Taken together, smaller homes with richer staffing ratios were naturally superior. They studied 15 housing services in South Wales, and examined complex relationships among ecological variables and resident characteristics. They reported that "*The relative benefits of small, community-based housing services over institutional and larger community settings were confirmed by the Welsh data.*"

Tossebro (1995) produced an important study entitled "*Impact of size revisited: Relation of number of residents to self-determination and deprivatization.*" Working in three Norwegian countries, he analyzed the impact of number of residents in facilities for people with mental retardation on two quality

of care measures, deprivatization and self-determination. It was hypothesized that the size of the facility would make little or no difference, whereas the size of the living unit will have a significant impact, but only within a narrow size range. [Subjects] were 591 residents (aged 18-67 yrs) of 36 facilities in 3 Norwegian counties. Data were based on staff interviews. Results supported the hypotheses: Living unit size had a substantial impact on self-determination and deprivatization in the 1 to 5 bed size range but not among larger units. According to a later review by Stancliffe (1997),

Tossebro (1995) has helped to clarify this somewhat confusing picture. He found no association between self-determination and *facility* size (a number of facilities were made up of multiple living units) but a linear relationship with *living-unit* size. There was a strong correlation ($r=.48$) between self-determination and living unit size for small settings of 1 to 5 individuals but no relation ($r=.05$) for larger units of between 6 and 16 persons.

Tossebro's (1995) findings are of considerable importance in interpreting research on living-unit size and point to the need to expand the meager research base on size effects in the 1 to 6 person size range that is characteristic of small community settings. The generalizability of Tossebro's findings is limited because all of the living units he examined were classified as institutions. Some very small facilities (4 to 9 persons) were located on an ordinary street, but "the smallest living units were largely located on institution grounds" (J. Tossebro, personal communication, December 4, 1995). One other limitation was that Tossebro assessed self-determination using a single staff rating of each person's freedom of decision. If his findings can be replicated in a community setting, using a more detailed, psychometrically sound measure of choice that does not rely solely on staff perceptions, the generality of his conclusions will be greatly enhanced.

Conroy (1996) used a matched comparison design for 51 pairs of people in community homes in Pennsylvania, and showed that many qualities of life were higher in smaller community homes, other things being equal. Moreover, the total costs of services and support were lower in the smaller homes. The study was complicated by the fact that the settings were associated with different funding streams, and were regulated differently. The larger settings were generally in the ICF/MR,¹⁹ funding stream, and the smaller ones were funded via the Home and Community Based Services Waiver program. Because of the mixture of size and funding variables, the study provided a useful piece of evidence, but could not be definitive.

Perhaps the most significant study of the 1990s was performed by Stancliffe (1997). His article, entitled "*Community living-unit size, staff presence, and residents' choice-making,*" examined the impact of size of residence on residents' opportunities for choice among Australian adults with mental retardation who lived in staff-supported community residences housing one to five residents. Significantly greater choice was exercised by individuals living in smaller settings,

¹⁹ ICF/MR stands for Intermediate Care Facilities for [People With] Mental Retardation.

even when personal characteristics of individual residents were controlled statistically. Staff presence (number of waking hours when staff were present in the home) was confounded with living unit size. Analyses including both staff presence and living-unit size revealed strong effects of staff presence, with more choice displayed in settings with longer periods when no staff members were present. Size effects were less evident once the variability associated with staff presence had been accounted for. Results suggested that both staff presence and living-unit size are important predictors of choice. According to Stancliffe,

“Together with the results reported by Burchard et al. (1991), Conroy (1992, 1996), Schalock (1994), and Tossebro (1994), the present findings provide a strong case for asserting that, for small community residences, smaller settings (which often have lower levels of staff presence) are associated with substantially better client outcomes, notably choice. Although size was confounded with staff presence and/or residence type (e.g. ICF/MR status) for some of the studies in this list, taken together they offer consistent support for the proposition that size matters in small community residences. Looking at the residence-size literature as a whole, one is struck by the almost complete absence of contrary evidence. Although a number of studies of larger residences have reported no significant size-related effects, almost none have reported better outcomes in larger settings (e.g., Landesman-Dwyer et al., 1980).

Stancliffe, Abery, & Smith (2000) performed a study in which they attempted to go “beyond living-unit size and type”²⁰ They investigated personal control, an indicator of quality based on self-determination, among 74 adults in Minnesota community homes. They used advanced mathematical techniques to try to tease out the potential effects of individual differences, characteristics and funding streams, and found a clear and rather simple hierarchy. Personal control was highest in semi-independent homes, next highest in Home & Community Based Services Waiver homes, and lowest in community homes funded via the Intermediate Care Facilities for [people with] Mental Retardation (ICF/MR) program. Moreover, the findings held up even within the smallest range of sizes, from 1 to 5 people.

A meta-analysis of behavioral outcomes of deinstitutionalization was reported by Kim, Larson, & Lakin (2001). Their review of more than 30 studies showed that people tend to grow and learn and develop independent functioning skills far more rapidly and effectively in small community homes than in large institutional ones. Their abstract stated:

A summary of studies conducted between 1980 and 1999 on the changes in adaptive behavior (daily living skills) associated with leaving and staying in institutions. It reviews over 30 studies that followed people from 6 to 72 months after leaving, some

²⁰ Stancliffe, R.J., Abery, B.H., & Smith, J. (2000). Personal control and the ecology of community living settings: Beyond living-unit size and type. *Mental Retardation*, *105*, 131-154.

with comparison groups that stayed, some just longitudinal and few that make both comparisons. The consistency of the findings to the benefit of the leavers is extremely impressive.

Cross (2002) reviewed the research on size, and reported to the Australian Capital Territory's Department of Disability, Housing, and Community Service that:

There has been considerable debate within the literature as to whether 'size' is a key variable in successful and unsuccessful living outcomes. Generally size alone is not considered to be the powerful determinant of outcomes, however there is substantial evidence that size is a factor. Several major studies show that reduction in 'institutional' practices (by staff, and consequently by clients) is most likely to occur when size is small. In some studies this is considered to be 3 or less, in others 4 or less.

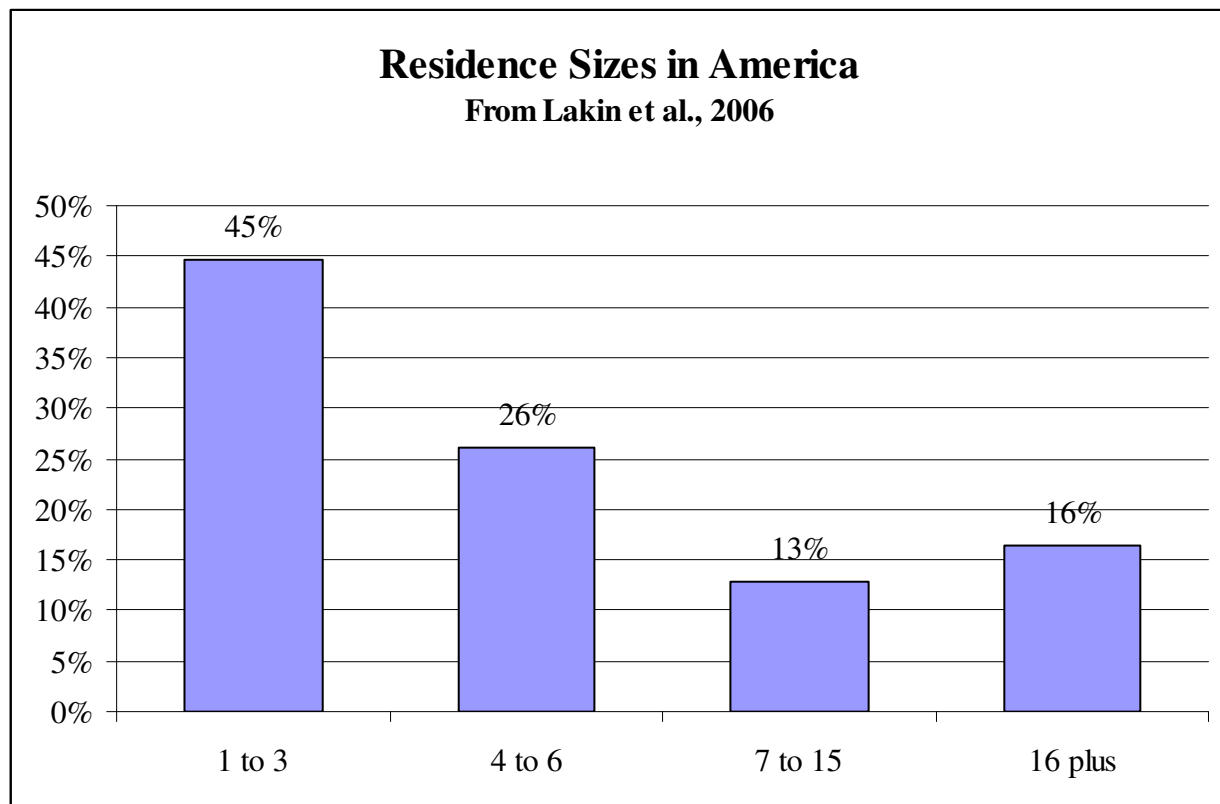
During the past decade, a new resource for databased analysis of the issue of size has been constructed. The National Core Indicator project²¹ was designed to collect data on qualities of life and service among people with intellectual and developmental disabilities in residential settings. It gradually grew to include participation of more than 20 states.

Recent analyses, reports, and publications shed light on variations in setting size related to quality indicators including choicemaking, loneliness, and liking one's home. The NCI data have also been used to explore relative cost of two kinds of community funded settings, and this analysis was also related to the size of the home.

Because the NCI data are so new and significant, they are treated in some detail in the "*New Analyses from the National Core Indicators*" section of this report.

²¹ See the National Core Indicators website at <http://www2.hsri.org/nci/>

That summarizes the research literature on the size of group homes in developmental and intellectual disabilities. Since 2000, there have been reports of trends, but we found no further research investigations. Lakin, Prouty, & Coucouvanis (2006) reported on ‘changing patterns in size of residential settings,’ updating their earlier reports. They had found that in 1977, the average residence for citizens with intellectual & developmental disabilities was 22.5. By 1994, it was 4.9. From the year 2000 to 2005, the preference for small settings continued. In 2000, 39% of people in residential settings were in size 1 to 3 person homes, and in 2005 this figure had increased to 45%. The figure below shows the most recent size distribution of residential settings for people with developmental and intellectual disabilities in America.



In 2005, the total number of people in these residential settings was 411,215. The average cost of the large institutional settings, above 16 people, was more than \$200,000 per person per year. The average cost of the small community settings was approximately half of that figure. Clearly, this was an issue with considerable policy import.

The Group Size Issue in Residential Programs for People with Disabilities: New Research

In 1992, we analyzed data from the National Consumer Survey, the Pennhurst Longitudinal Study, and the Connecticut CARC v. Thorne Longitudinal Study with regard to size and quality (Conroy, 1992), and found strong evidence of a direct relationship. That investigation would have benefited from further analysis of small settings, and it did not include costs. Here we have analyzed newer data to explore the size-quality issue, and have included large scale data on costs.

The analyses presented here are primarily offered in graphic format, without complex statistical descriptions, although those are available and all the relationships depicted in the graphics are ‘statistically significant’ at very high levels. The aim of this presentation is to show whether or not there is a clear, simple, consistent relationship between qualities of life and the size of a group home.

To reveal the answer, we present graphs of quality by the size of the homes across the studies and across many indicators of quality – individualized and person-centered support practices, perceived quality of life, power & control, integration, physical quality of the home, normalization, and individual behavioral progress over time. The number of graphs presented could be overwhelming, but they are all designed to show whether qualities really do vary with size – and are therefore easy to interpret.

The evaluation, research, and quality assurance work we analyze here comes from long term projects in California, Indiana, Oklahoma, Michigan, and the National Core Indicators efforts now under way in more than 20 states.

We tracked the progress of deinstitutionalization in California from 1994 to 2002, and produced more than 30 formal scientific reports on quality. By the end of the ‘Coffelt Quality Tracking Project’ there were just over 2,400 people being visited annually, face to face, with collection of multiple measures of quality. The studies also included mail surveys of every known family every year, and a quality feedback system to alert local authorities both to situations of concern and situations of unusual merit.

Indiana’s progress away from institutional models was tracked from 1997 to 2001, and included direct data collection with more than 600 individuals in their

homes, both before and after movement from institution to community. There were 10 formal research reports issued.

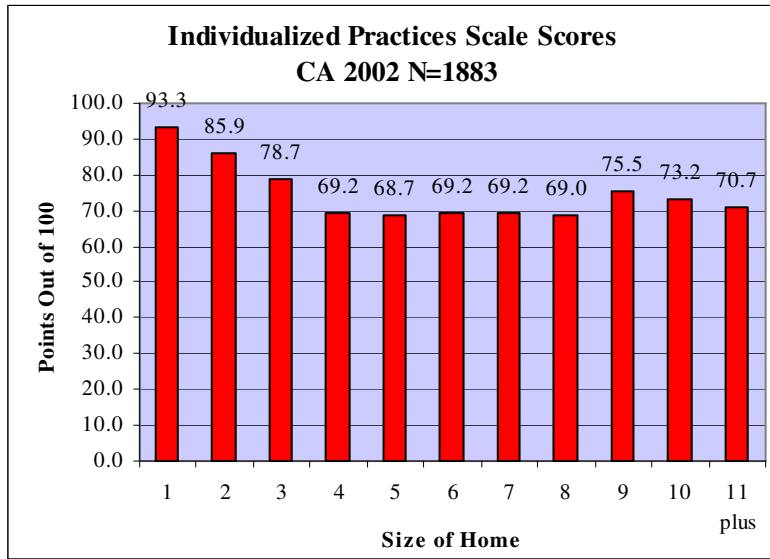
Oklahoma's Quality Assurance Project began in 1992, and continues to the present. It was focused on the approximately 1,000 people who moved out of the Hissom Memorial Center when it closed under court order, but at times included more than 3,500 Oklahoma citizens with disabilities in community settings. There have been more than 30 formal reports arising from this work, which is probably the largest and longest lasting effort to track community quality in the nation.

In Michigan, as part of our research on self-determination for the Robert Wood Johnson Foundation (Conroy et al., 2002), we visited more than 400 potential participants in 1998. Then in 2001 and 2002, we re-visited more than 200 of them, measuring many aspects of quality of life and service.

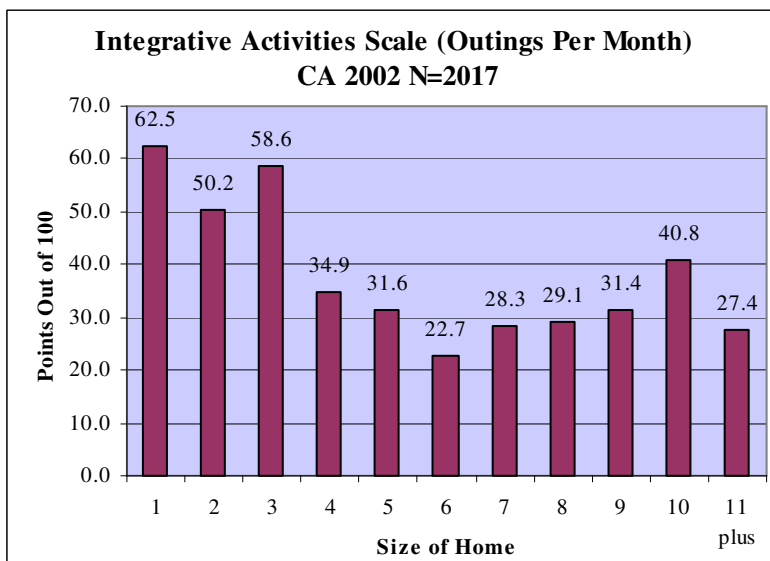
The National Core Indicators project (<http://www2.hsri.org/nci/>) is an attempt to collect consistent data on community residential settings across state lines. This is the first long lasting undertaking of its kind. It has recently reached the magnitude at which useful analyses of issues like the size of the home can be conducted. We report on the findings of the NCI team with regard to size here.

California's Coffelt Quality Tracking Project

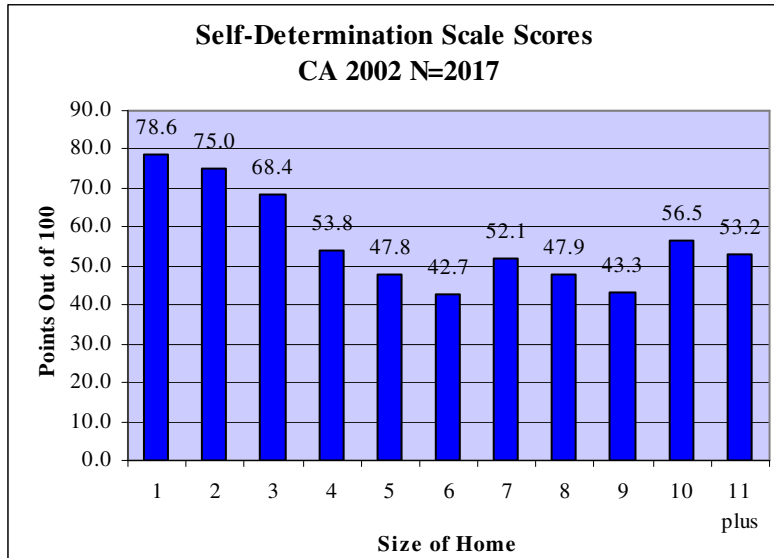
The California measures included a scale of individualized practices in the home. The scores on this scale do vary with size of the home. The data from 2002 show the pattern clearly, with larger homes showing less individualization.



The frequency of integrative activities was measured simply as the number of times per month that each person 'got out' of the home for community outings. The size effect was evident.



A measure of individual power and control, the Decision Control Inventory, was developed for the research on self-determination, and is highly reliable. In California, opportunities to exercise choice were highest in the smallest homes.

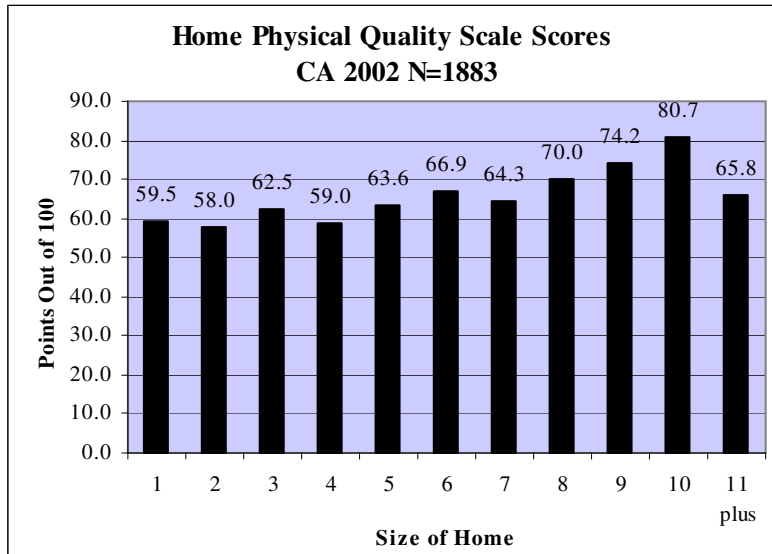


On every visit, an attempt was made by our data collection ‘Visitor’ to directly interview the focus person. Many people in community residential settings were unable to relate their experiences verbally, but for those who could, the data showed a clear pattern.

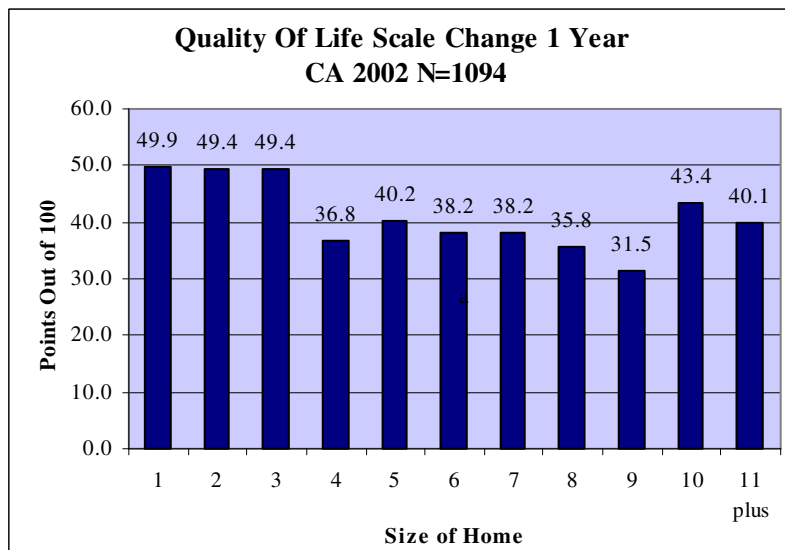


The California battery of instruments included a measure of the physical quality of the home. Here is our first contradictory finding. Our data collection

Visitors found, on the average, that larger settings were somewhat higher in qualities such as orderliness, cleanliness, and spaciousness. Taken all together into a single overall scale, the pattern showed a tendency for larger settings to score slightly higher.

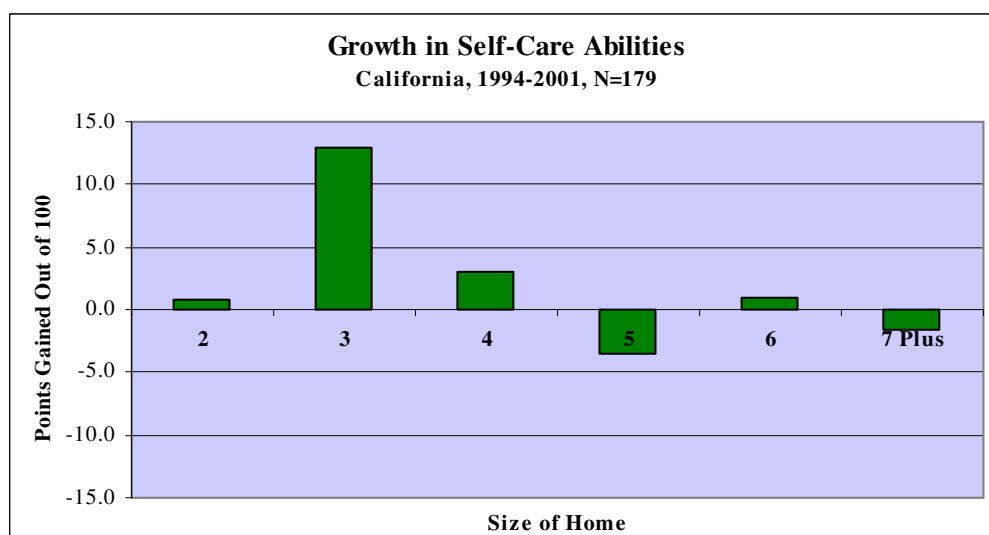


The California work also included our 14 item scale on perceived qualities of life. This simple one page scale asks individuals (and the support workers or family members who know them best) how good or bad their lives are – and also how good or bad their lives were before moving to their current home.



The graph shows perceived change in quality, from “Then” to “Now.” The highest positive changes are in the smallest settings.

We also examined the longest possible time span in the California data, from people living in institutions in 1994 to community in 2001. There were 179 people with complete data from that long span of time. One of the classic indicators of quality of service is behavioral growth. In this case, we measured independent functioning (also called self-care or adaptive behavior) over the years. Breaking down growth in self-care abilities by size, we found that size 3 was associated with the largest positive change.



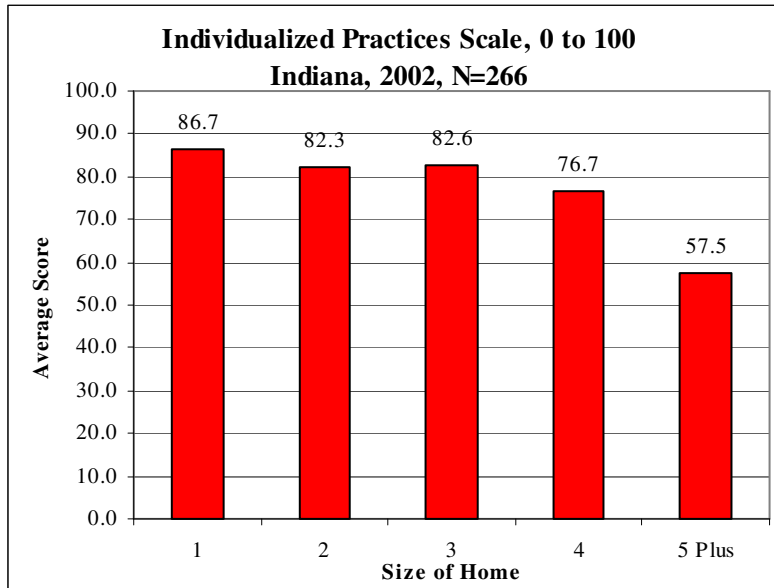
The smaller number of people in this analysis suggests greater caution in interpreting the graph. The suggestion is clear enough, that the smaller settings are associated with greater developmental progress, but the finding cannot be considered conclusive.

Taken as a whole, the California database, here analyzed for the first time about the size issue, leads to the inference that most indicators of quality are higher in smaller community homes.²²

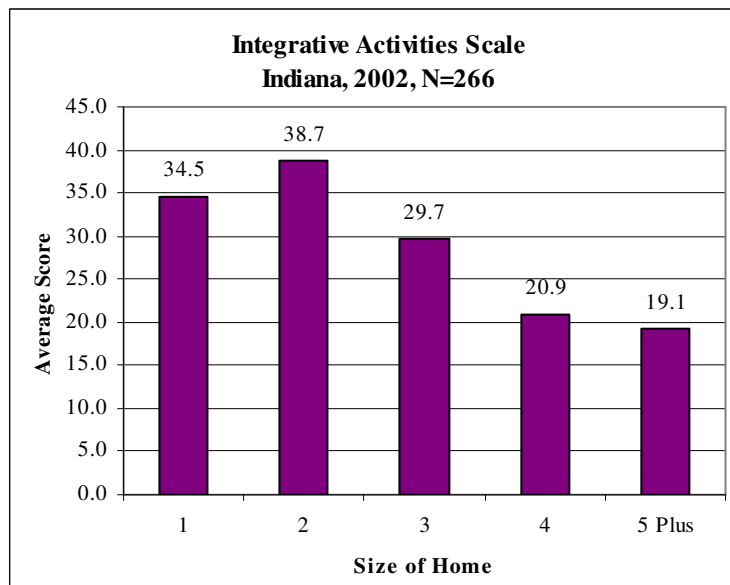
²² The entire body of work in the Coffelt project also showed conclusively that people were ‘better off’ by practically every measure in the smaller community homes than they were in the large Developmental Centers.

Indiana's Quality Tracking Project

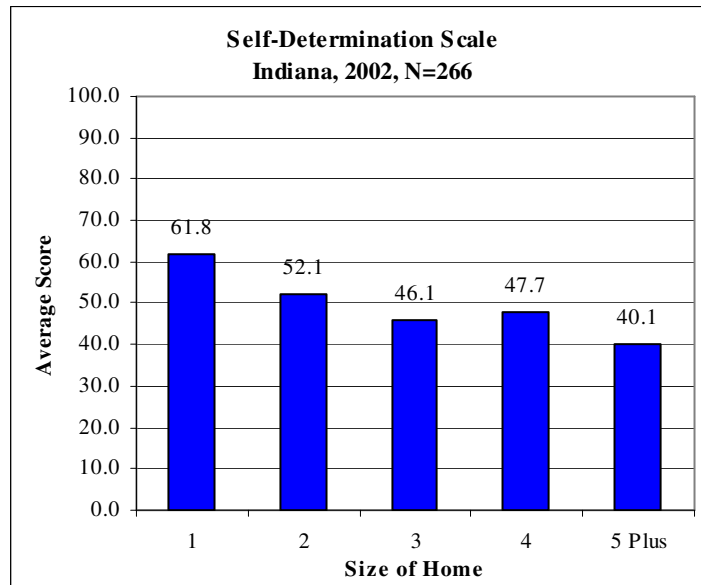
Just as in California, the Indiana work included a scale of individualized practices, and it clearly varied with the size of the home. Indiana was different in that settings above size 5 were almost non-existent, whereas in California, size 6 was commonplace. Hence the Indiana graphs reflect smaller homes.



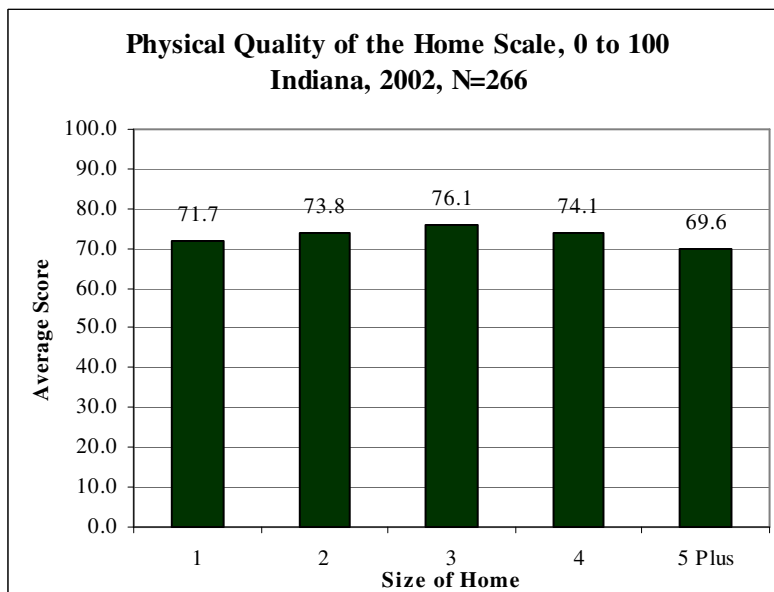
Integrative activities per month were higher in smaller homes:



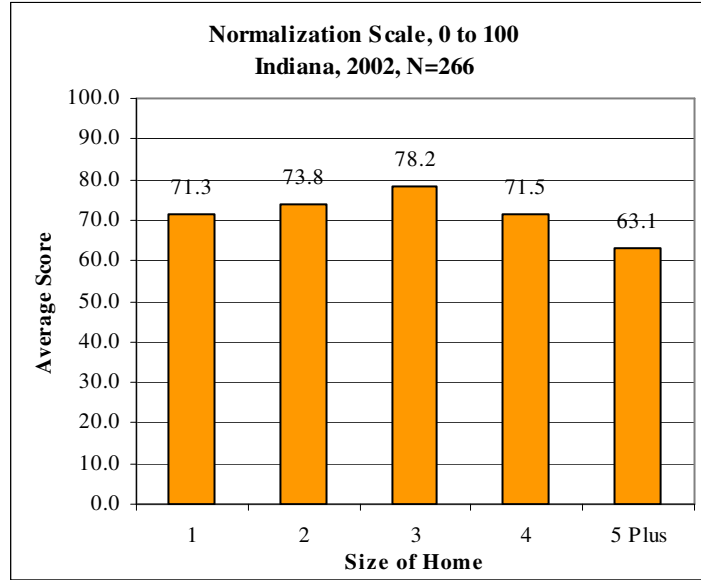
Our reliable scale of individual power and control showed higher scores among people in the smaller settings.



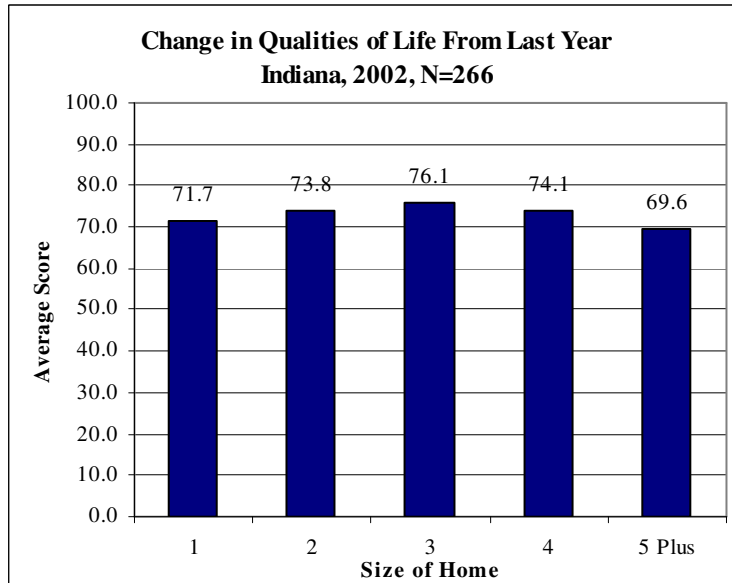
The physical quality of the homes varied slightly by size, but smaller was not consistently 'better,' just as we saw in the California data.



The Indiana work included a classic scale measuring an aspect of quality that was dominant in the field in the 1970s and 1980s, ‘normalization.’ It showed a pattern of increase up to size 3, and then a decrease as size went up.



Indiana data provided an opportunity to examine the Qualities of Life scale data across one year. Although this measure relied on memory, and was therefore less definitive than true pre-post data, it did show a pattern of highest improvement in the settings of size 3. Life quality improvements were actually lower in both the smaller and the larger settings – a finding much like the Normalization scale.



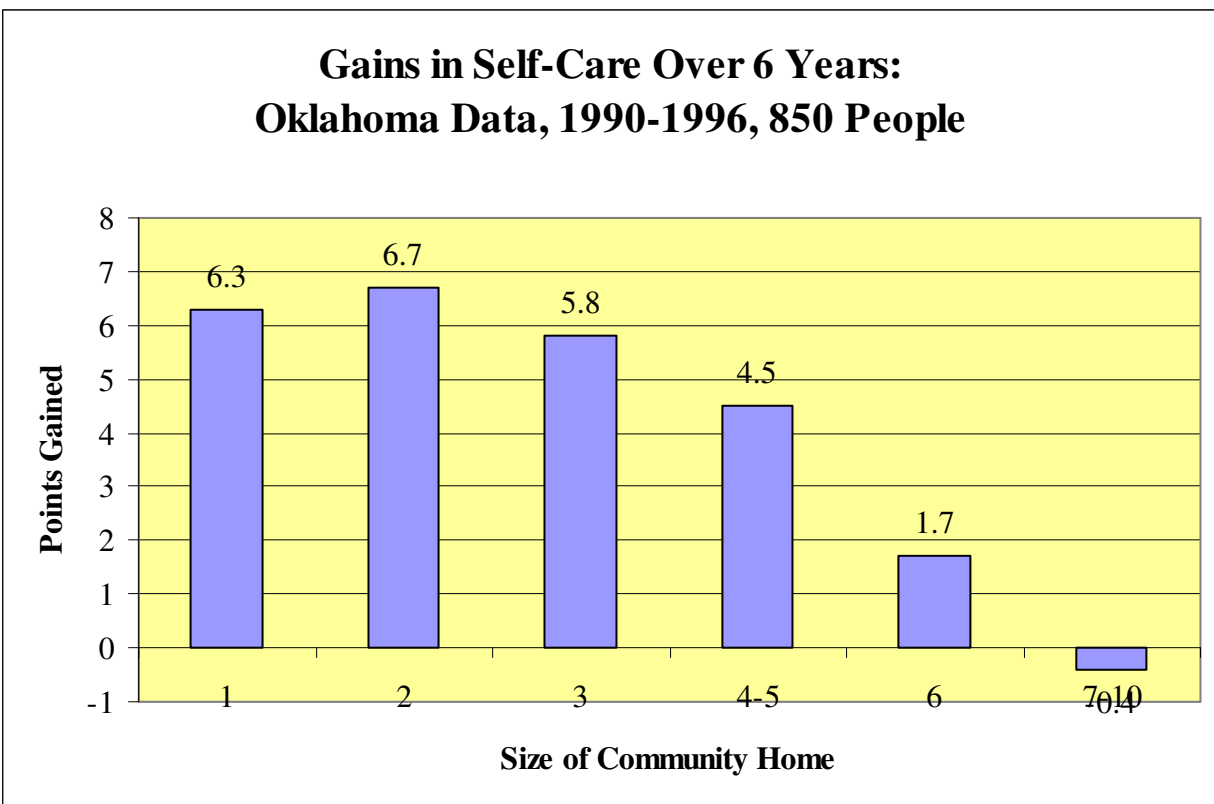
The data from the Indiana work showed a pattern of superior qualities in the smaller settings. Physical quality in terms of order, cleanliness, and roominess were again the exception. Two of the indicators suggested that size 3 was 'better' than smaller or larger settings.

This finding is not yet fully understood, but the next data set, from Oklahoma, should shed further light – because the closure of Hissom in Oklahoma was achieved by movement into the smallest settings yet studied. Instead of 'group homes,' the Oklahoma community settings were characterized as 'supported living.'

Oklahoma's Quality Assurance Project

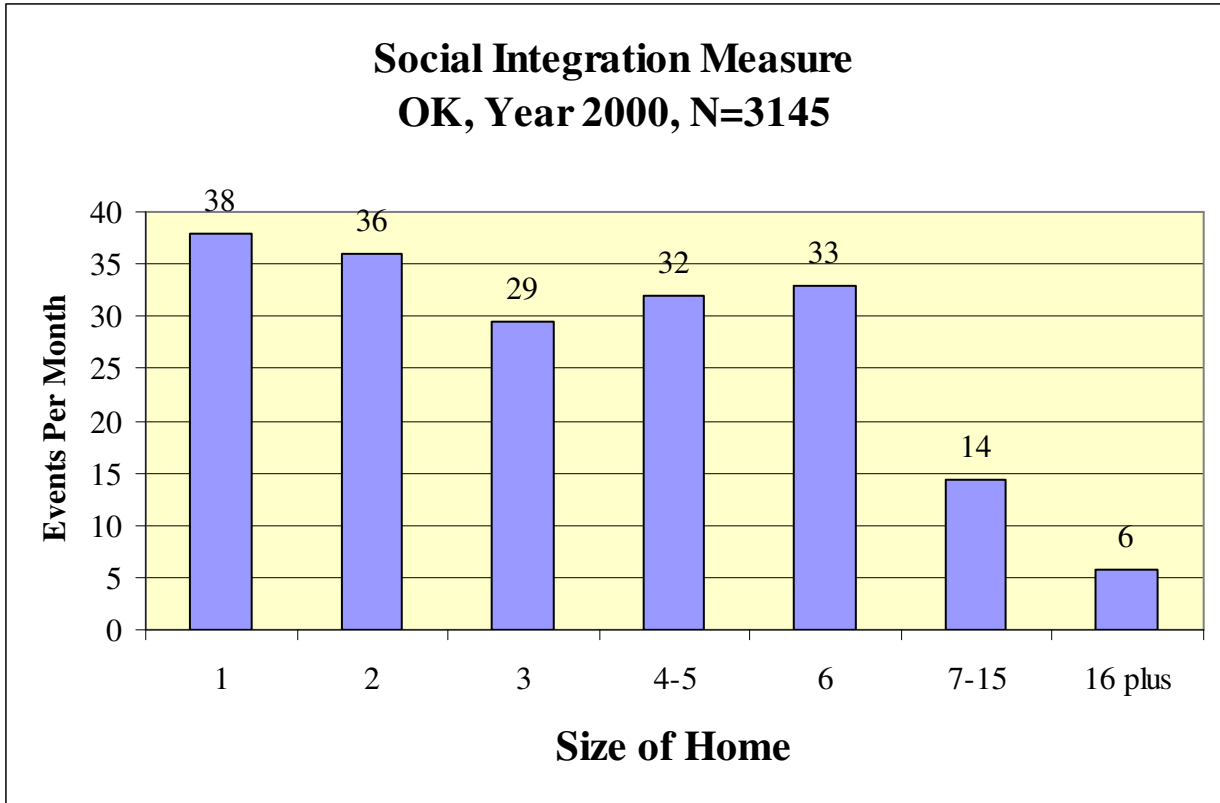
Oklahoma's deinstitutionalization efforts relied on the smallest community settings. This enabled the closest scrutiny yet on the issue of the size range below 6 beds.

In the 1990s, data from Oklahoma were utilized to construct this now fairly well known graph:



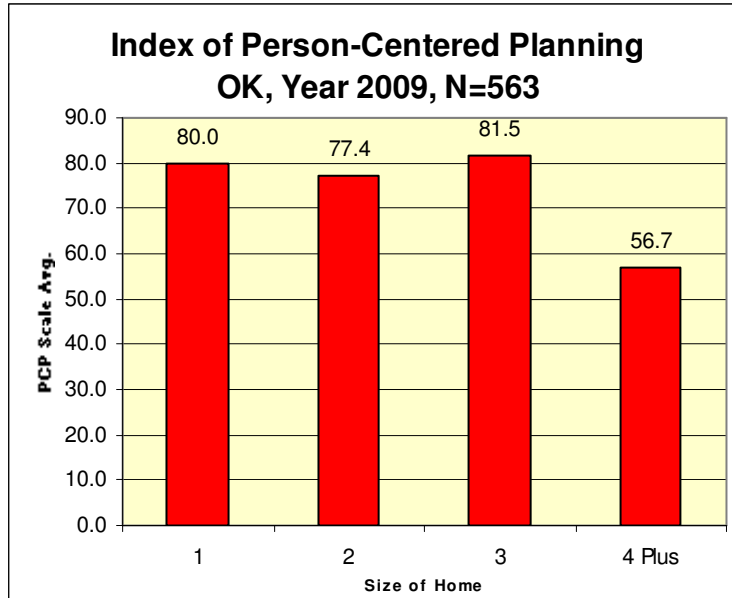
If developmental progress is a desired goal, then the Oklahoma data indicated that people in smaller homes made by far the greatest gains. Above 6 people, gains not only vanished – they tended to move toward losses.

In the year 2000, the Oklahoma data produced insight into the issue of community integration:

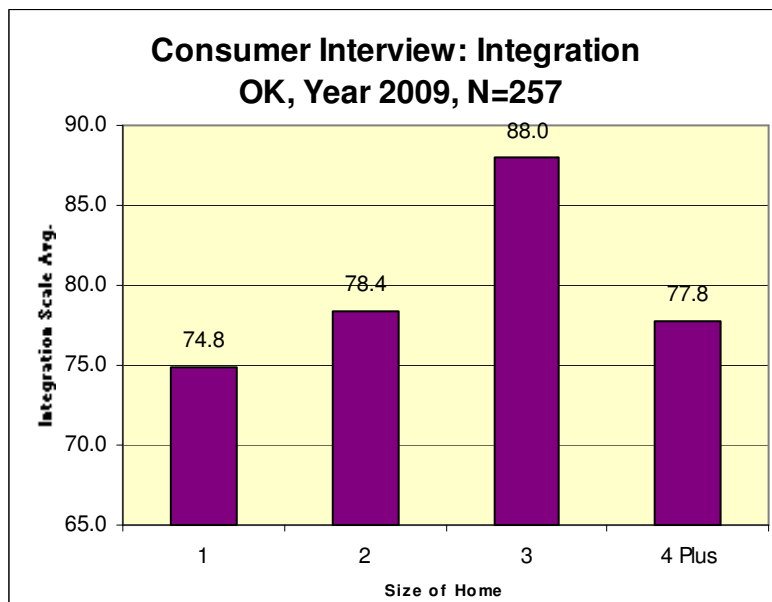


These findings made it very clear that the larger homes tended to cut off community integration.

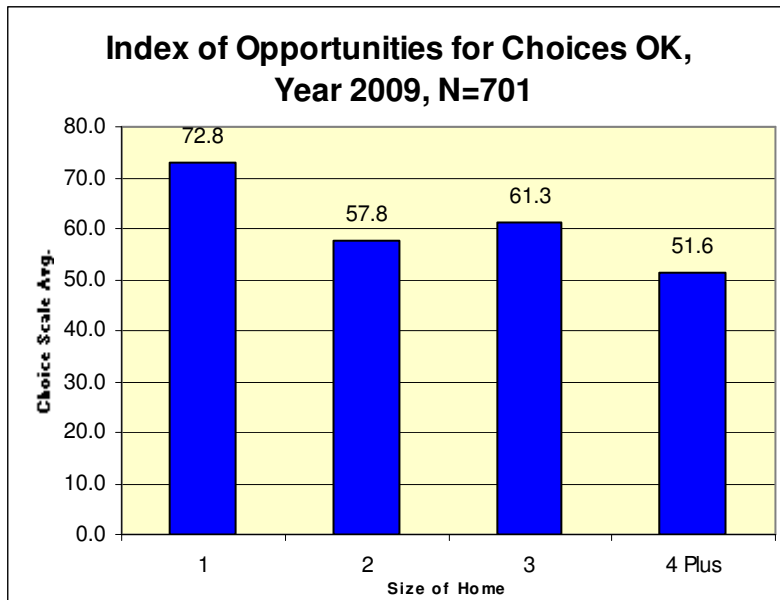
The most recent round of data collection in Oklahoma (2009) yielded equally powerful findings. The measure of the degree to which Person-Centered Planning was implemented, a strong indicator of individualized treatment, showed generally good practice in setting of 3 beds and below, with a sharp drop-off at 4 beds and above.



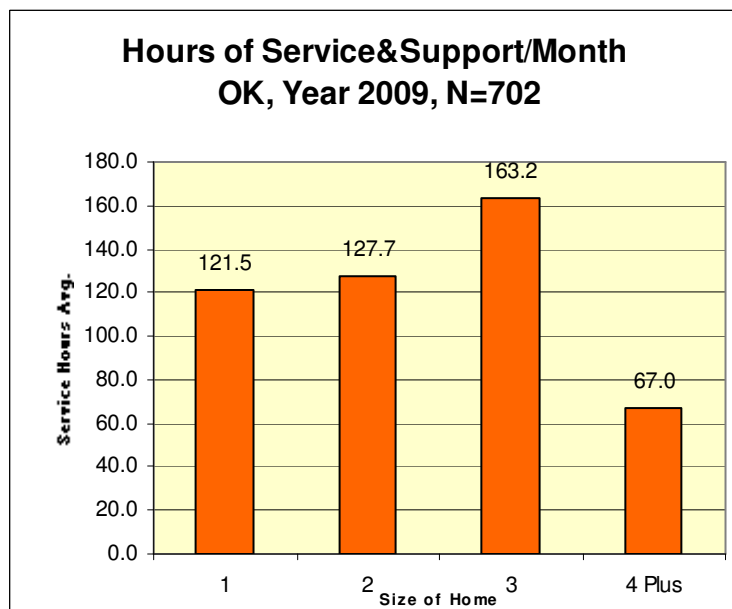
Data on opportunities for integrative activities revealed a peak at size 3, with settings both smaller and larger associated with lower levels of ‘getting out and about.’



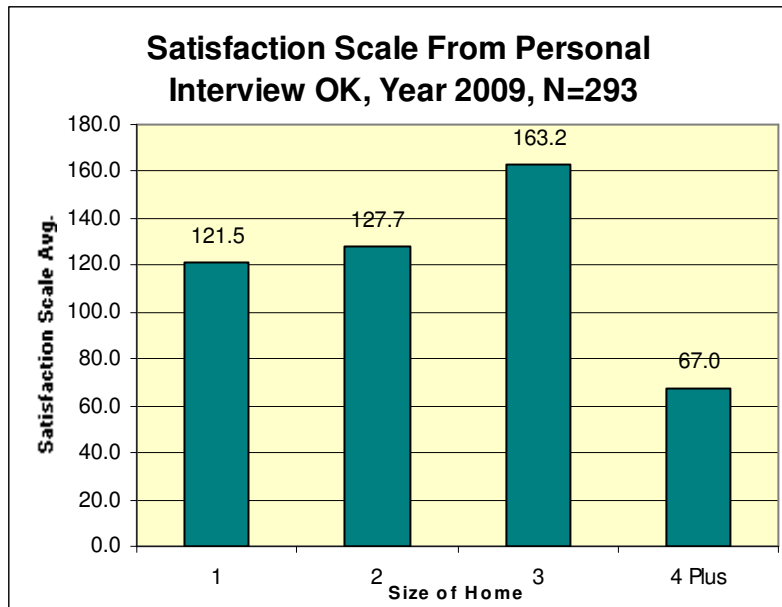
Power and control, or self-determination, was indexed by a shortened form of our Decision Control Inventory, and revealed higher scores in the smaller settings.



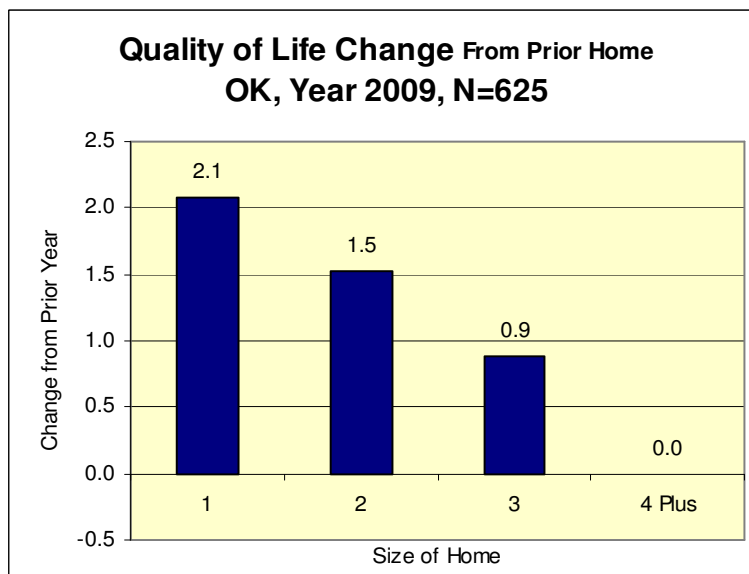
Another index of services was the amount of formally planned and scheduled “services,” meaning any staff or professional activity aimed at goals in the person’s individual plan. The high point was reached in settings of size 3, again with a sharp drop-off at size 4 and above.



Direct interviews were attempted with every person, on every data collection visit. For the people who were able and willing to respond, the satisfaction with life in the home data showed the highest scores at 3 people, with another sharp drop-off at 4 people and above.



The Oklahoma data included memory. People were asked about the qualities of their lives “Now” and also about quality in their previous homes – for most of the people, this meant the institution. The relation between improvement in life quality and the size of the home was dramatic, and the graph following shows.



The Oklahoma data tended to show a very strong relationship between community home size and quality. Because Oklahoma’s deinstitutionalization efforts relied on very small ‘supported living’ models, this database provided very

important opportunities to examine quality at the smallest setting sizes. The results appeared to be compelling, in the direction of smaller being 'better' in every way.

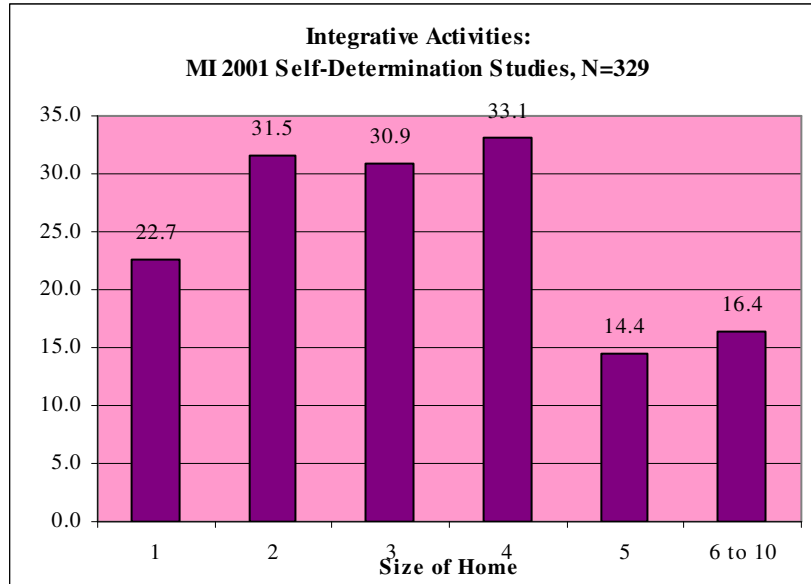
Michigan's Early Self-Determination Research

The original self-determination demonstration was conducted in New Hampshire from 1994 to 1996 (Conroy & Yuskas, 1996). The findings were strongly positive, and the question naturally arose: "*Could this model of supports 'work' in another kind of situation, a place larger and more urban?*" The first attempts to test that question were conducted in Michigan, beginning at the then named Wayne Community Living Services agency.

When the Robert Wood Johnson Foundation awarded 17 grants to state agencies to test self-determination, Michigan was one of the first to receive funding. The demonstration involved people at four pilot sites in the state. Our evaluation efforts began in 1998, and involved visiting all the potential participants "pre" self-determination. We collected data on multiple qualities of life before the people began working toward individual budgets, independent case management, and fiscal intermediaries. More than 400 people were included in the 'baseline' data collection.

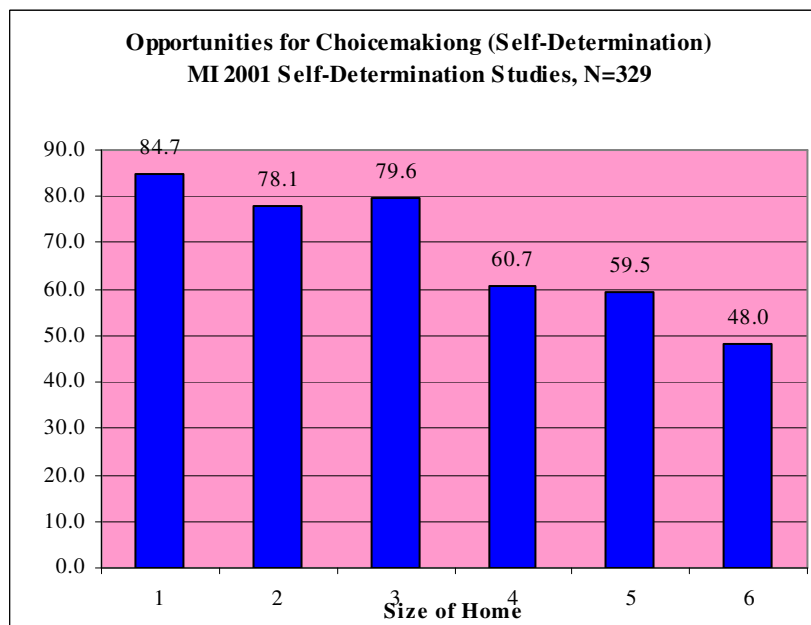
In 2001, most of the potential participants were visited again, and the same quality data were collected. This provided a database on quality for hundreds of people in Michigan – and these data have never before been analyzed with respect to the size of the community residence. What follows is entirely new research on the question of size and quality – and specifically among people in Michigan.

In 2001, we visited 329 people across the four pilot sites in Michigan, and one of the quality indicators was again integrative activities. The following graph shows the results.



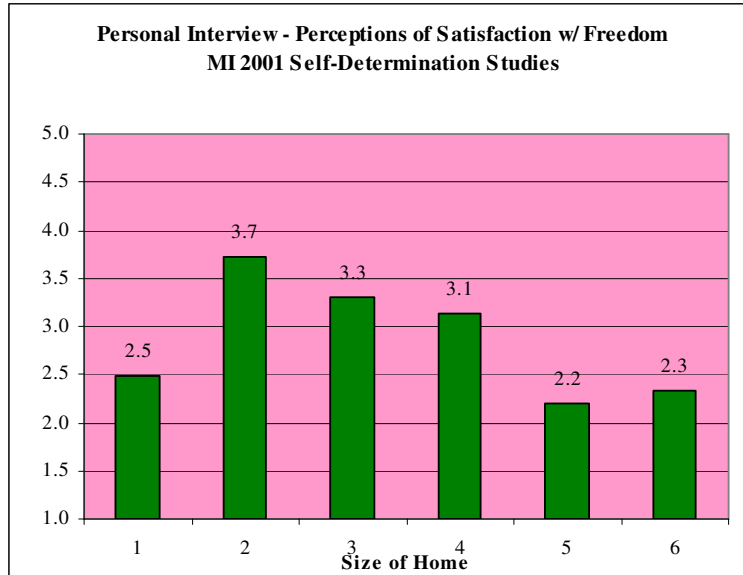
Clearly, the smaller community homes were associated with higher levels of community integration. The drop-off began at 5 people.

Power and control, the classic issues of self-determination, were explored. The next graph makes it obvious that opportunities for choicemaking fell sharply in the larger settings.

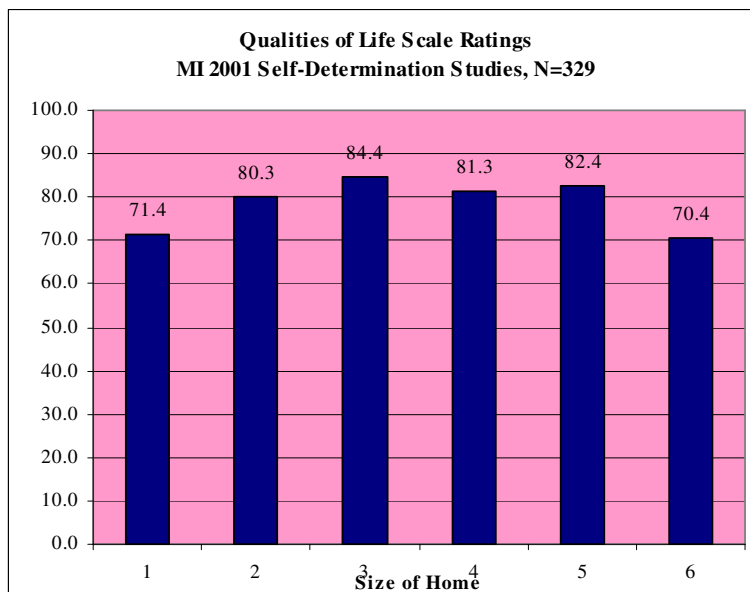


Once again, we attempted to directly interview every person visited. Not everyone was able or willing to respond, but for those who were, we were able to

ask whether they were satisfied with the amount of control and freedom they exercised over their own lives. The data showed superiority in the smaller settings, with a drop-off above 4 people.

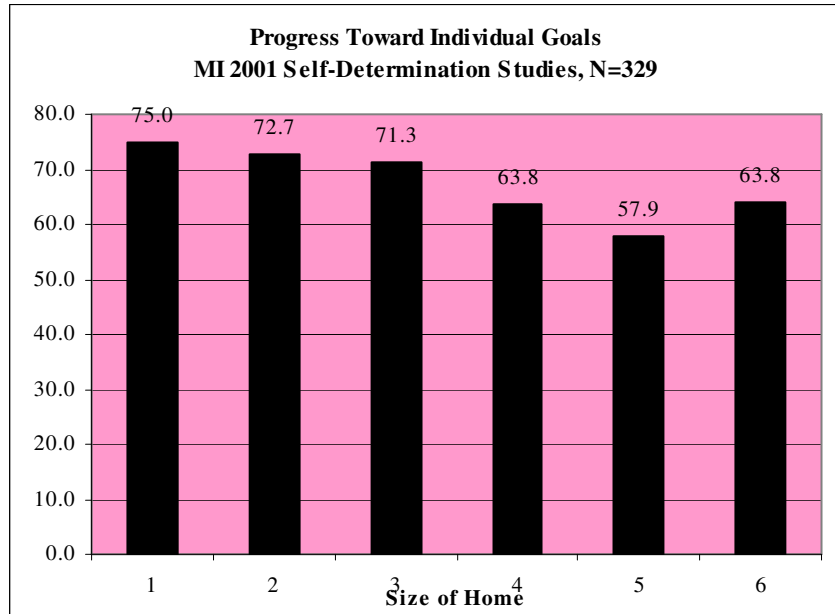


The overall qualities of life scale showed the highest scores in the small settings, with a drop-off above 5 people.



The data included ratings of the degree to which each person was making progress toward his/her individual program goals. The tendency here too was superior outcomes in the smaller settings, with the homes of size 1, 2, and 3 higher

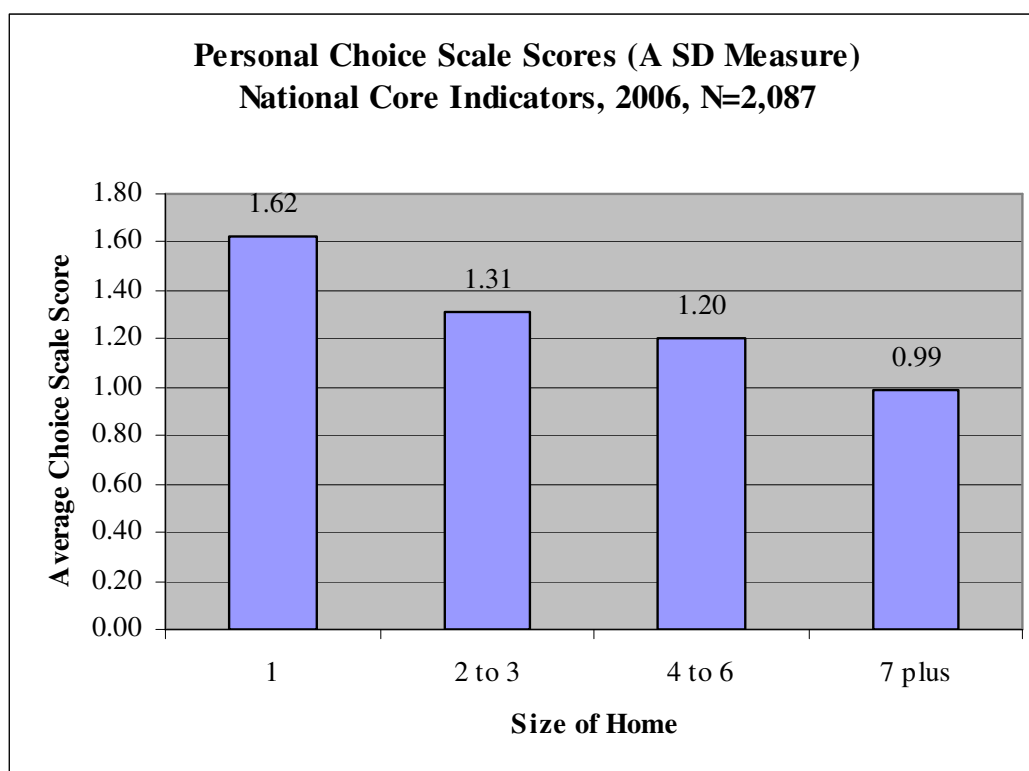
than homes of size 4, 5, or 6. Statistically, these data showed significant difference only between the smaller and the larger homes.



Overall, the data from the Michigan work supported the inference that smaller homes were connected with higher qualities of life and service. Several analyses showed a serious decline in quality when size rose above 4 beds.

New Analyses from the National Core Indicators Project

The NCI (National Core Indicators) project²³ is an attempt to acquire data on qualities of support and life across state lines. Using the most recent data from that project, investigators examined personal choice – an index composed from four simple items on control and power over one’s own life. The 2006 data showed a strong pattern of declining choice in larger homes.



These data were explored in Lakin et al. (2008a) in an article entitled “Choice-Making Among Medicaid HCBS and ICF/MR Recipients in Six States.”²⁴ According to the authors,

Choice in everyday decisions and in support-related decisions was addressed among 2,398 adults with intellectual and developmental disabilities receiving Medicaid Home and Community Based Services (HCBS) and Intermediate Care Facility (ICF/MR) services and living in nonfamily settings in six states. Everyday choice in daily life and in support-related choice was considerably higher on average for HCBS than for ICF/MR

²³ See NCI website at <http://www2.hsri.org/nci/>.

²⁴ This article was based partially on an earlier report submitted by the University of Minnesota to the Centers for Medicare & Medicaid Services: University of Minnesota, 2006.

recipients, but after controlling for level of intellectual disability, medical care needs, mobility, behavioral and psychiatric conditions, and self-reporting, we found that choice was more strongly associated with living in a congregate setting than whether that setting was HCBS- or ICF/MR-financed.

Thus the data showed that, other things being equal, choice and self-determination were highest in the smallest settings.

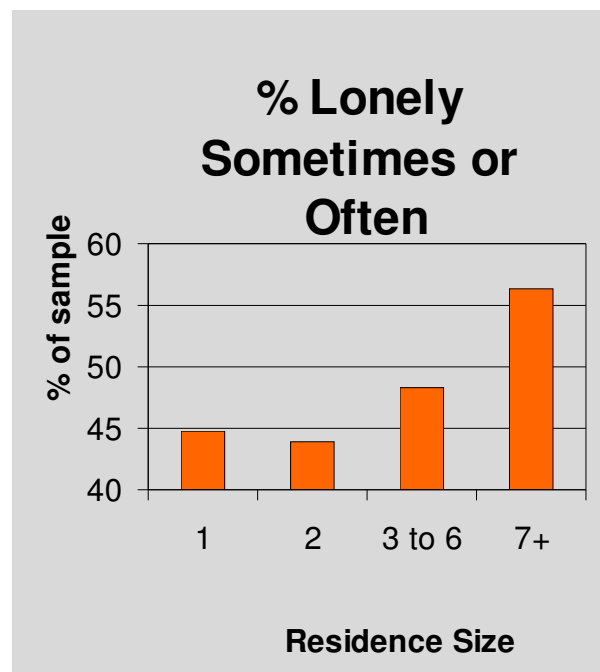
The NCI database also permits analysis of the issue of loneliness. One common question about small settings, naturally, is “Won’t people be lonely if they live by themselves or with just one or two others?”

The loneliness issue was explored in some detail, by Stancliffe et al. (2007) in an article entitled “Loneliness and Living Arrangements.” The authors found among 1002 people in the NCI database that:

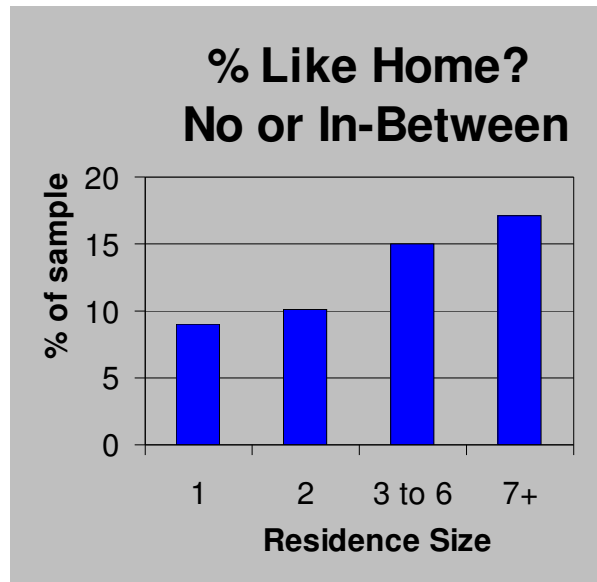
...loneliness was not more common for people living alone or in very small settings. More loneliness was reported by residents of larger community living settings of 7 to 15 people.

Moreover, higher levels of ‘social contact’ and ‘liking where one lived’ were associated with less loneliness.

The most recent data, presented by Moseley, Bradley, & Lakin (2010), showed that loneliness actually increased in the larger settings.



In addition to freedom and loneliness, the NCI data enable some insight into the simple issue of how much people “like” their homes. The following graph was constructed to show how many people Don’t Like their homes – and, organized by size, the results are dramatic.



Currently the largest database in the United States on quality of residential settings, the NCI reveals evidence that is entirely one-sided. Larger settings are very much the worse in terms of self-determination, loneliness, and simple satisfaction.

Most human services do not have such national databases with which to examine important issues. The existence of data from the NCI, and our own large studies, are extremely strong advantages in the scientific pursuit of policy. With regard to size and quality, the data overwhelmingly support the notion that small, family-scale settings are far superior to the larger, barracks-like group homes.

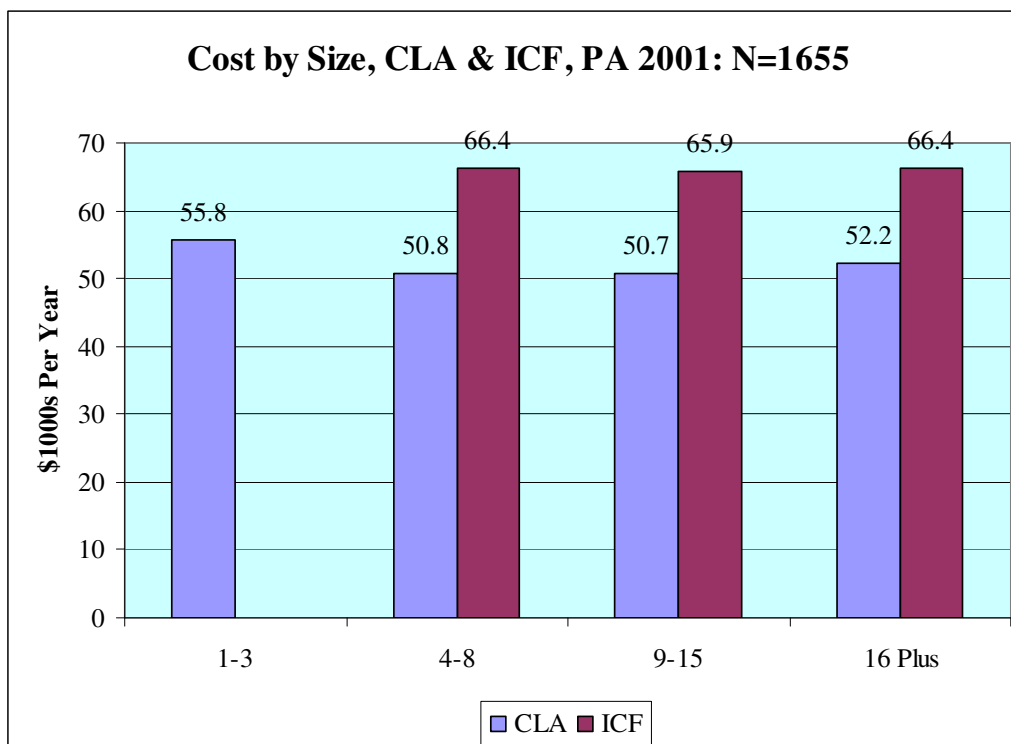
However, money has not yet been considered. The final section of this Policy Report examines what is available in that dimension of public services.

Cost Analyses by Size from Several Databases

The first point to be made about cost, quality, and size of residential settings is that the largest settings are associated with lower quality in the research literature, and yet they continue to be the most costly. The second point is that our usual assumptions about Economy of Scale may be wrong. The third point is that the data available to us right now are not conclusive – but they are consistent in that they tend to question the notion that moving people into larger group homes will “save money.”

Before presenting these somewhat old data, it is important to stress that more research is urgently needed. We have not examined the costs of settings by size for nearly a decade.

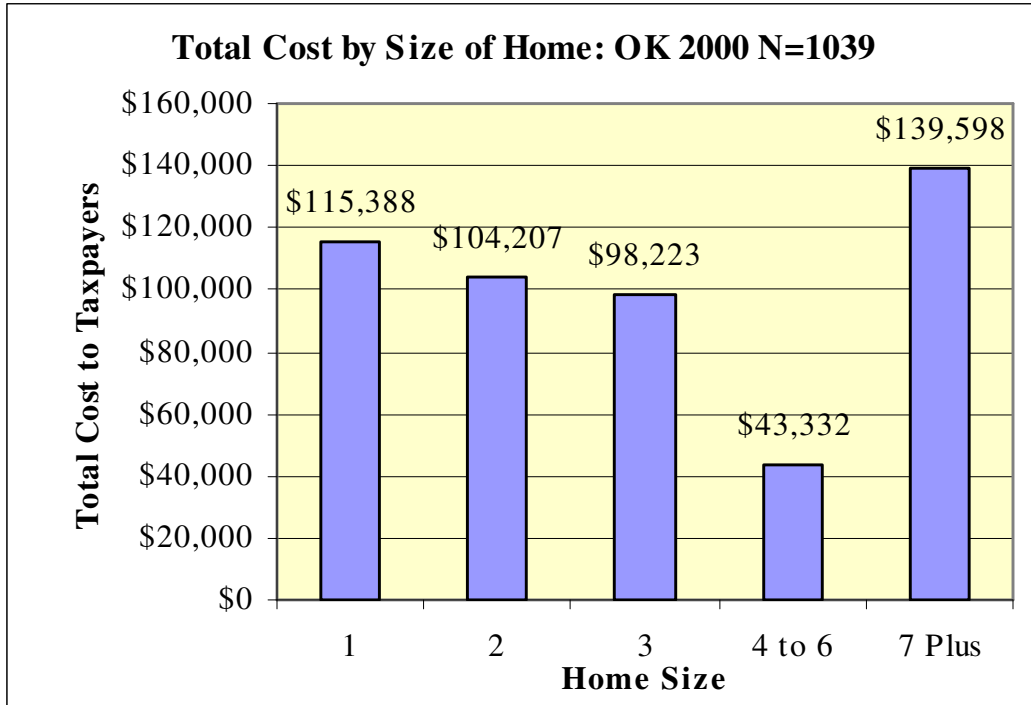
That being said, the first large scale analysis of cost by size is shown in the following graph from Pennsylvania data in 2001.



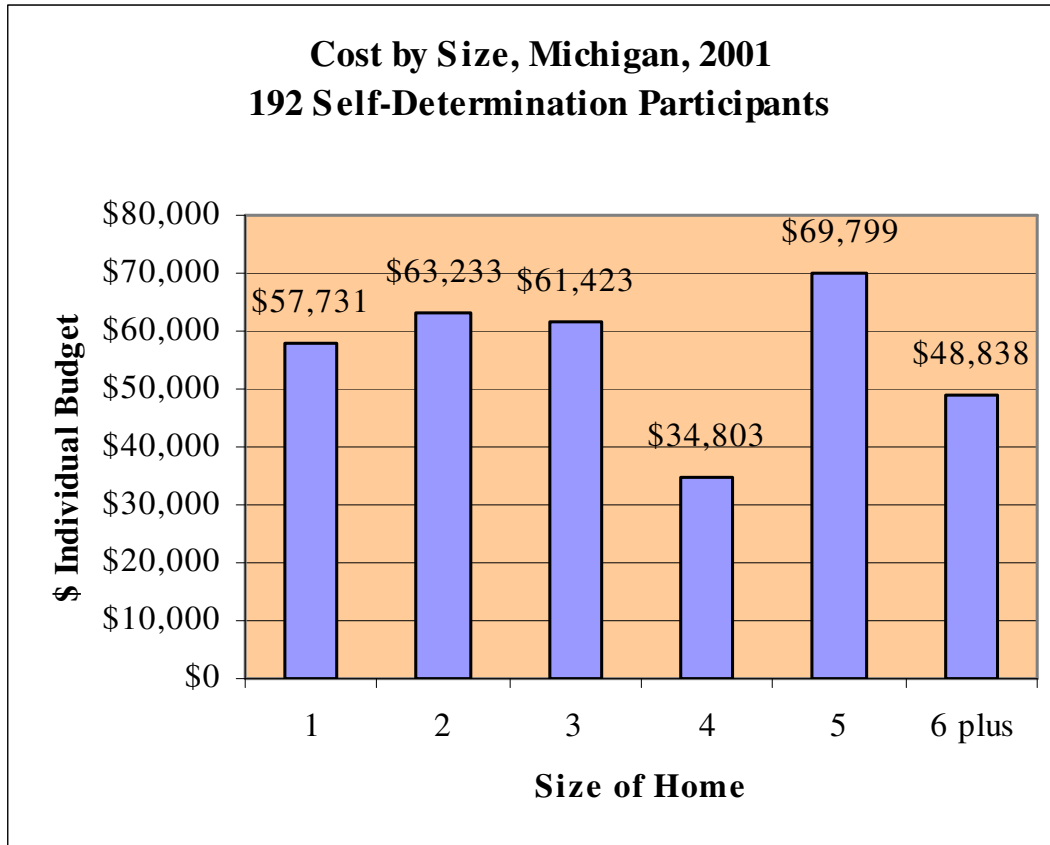
We broke out the data by type of funding stream. CLA stands for Community Living Arrangement, a model that rarely goes above 3 beds. ICF is the Intermediate Care Facilities or ICF/MR funding stream, which was defined in 1981

as “4 to 15 beds.” For the CLAs, costs fell slightly with settings over size 3. For the ICFs/MR, they did not.

In a study published in an academic journal, we investigated costs in Oklahoma in 2000. The graph following shows that the 4 to 6 person homes were less expensive than others, but when programs went above that size, costs escalated sharply.



Finally, in our 2001 studies in Michigan, we found that the amount in a person’s individual budget was inconsistently related to the size of the home.



This data set showed the lowest cost per person for the 4-person homes. The spike at 5-person, and the drop at 6 and more is not yet understood. More study will be necessary to explain these complex findings.

Referring once more to the National Core Indicators database, the most recent cross-state evidence on costs and size of homes is provided in Lakin et al. (2008b). In an article entitled *“Factors Associated With Expenditures for Medicaid Home and Community Based Services (HCBS) and Intermediate Care Facilities for Persons With Mental Retardation (ICF/MR) Services for Persons With Intellectual and Developmental Disabilities,”* these authors explored two kinds of community residential settings and their costs.

The so-called ICF/MR settings are funded via the Intermediate Care Facility/Mental Retardation (ICF/MR) program, which was defined as 4 to 15 beds, and was based firmly on old nursing home models and regulations. The other kind of community funding, the so-called Home and Community Based Services (HCBS) or ‘Medicaid Waiver’ settings were designed in reaction to the overly medicalized characteristics of the ICF/MR program. Waiver settings are expressly

designed to be smaller and more family-like than ‘hospital-like’ than the ICF/MR homes.

According to the authors in their Abstract,

“This article examines expenditures for a random sample of 1,421 adult Home and Community Based Services (HCBS) and Intermediate Care Facility/Mental Retardation (ICF/MR) recipients in 4 states. The article documents variations in expenditures for individuals with different characteristics and service needs and, controlling for individual characteristics, by residential setting type, Medicaid program (ICF/MR or HCBS), and state. Annual average per-person Medicaid expenditures for HCBS recipients were less than those of ICF/MR residents (\$61,770 and \$128,275, respectively). HCBS recipients had less severe disability (intellectual, physical, health service needs) than ICF/MR residents. Controlling these differences, and for congregate settings, HCBS were less costly than ICFs/MR, but this distinction accounted for only 3.3% of variation in expenditures. Persons living with families receiving HCBS (\$25,072) and in host families (including foster, companion, or shared living arrangements; \$44,112) had the lowest Medicaid expenditures.

Thus, other things being equal, the smaller, more family-like Waiver or HCBS settings were associated with slightly lower costs than the larger, more institutional, ICF/MR settings.

All in all, the notion that larger settings are less costly is not clear from data in Michigan. We must therefore be cautious and tentative in our conclusions.

However, because the quality data from Michigan and all over the nation are so compelling, we must caution policy makers there is no evidence that moving people into larger group homes will save money, but there is a great deal of evidence that quality would be sacrificed.

References

Amado, A.N., Lakin, K.C., and Menke, J.M. (1990). **1990 Chartbook on services for people with developmental disabilities**. Minneapolis: University of Minnesota, Center for Residential and Community Services.

Arndt, S. (1981). A general measure of adaptive behavior. **American Journal of Mental Deficiency, 85**, 554-556.

Ashbaugh, J. (1984). **Comparative costs analysis in the Pennhurst deinstitutionalization**. Cambridge, MA: Human Services Research Institute.

Bales, R.F. (1950). **Interaction process analysis: A method for the study of small groups**. Cambridge, Massachusetts: Addison-Wesley.

Bales, R., Strodtbeck, F. Mills, T., and Roseborough, M. (1951). Channels of communication in small groups. **American Sociological Review, 16**, 461-468.

Balla, D. (1976). Relationship of institution size to quality of care: A review of the literature. **American Journal of Mental Deficiency, 81**, 117-124.

Baroff, G. S. (1980). On "size" and the quality of residential care: A second look. **Mental Retardation, 3**, 113-118.

Bartels, J. (1982) **New York State Association for Retarded Citizens and Patricia Parisi, et al., v. Carey**. U.S. District Court for the Eastern District of New York, 72 Civ. 356/357. Decision handed down on defendant's request to exceed the 10 bed size limit.

Bedner, M. (1974). **Architecture for the handicapped in Denmark, Sweden, and Holland: A guidebook to normalization**. Ann Arbor: University of Michigan.

Berger, M. (1983). Toward maximizing the utility of consumer satisfaction as an outcome. In: Lambert, M., Christensen, E., and DeJulio, S., **The assessment of psychotherapy outcome**. New York: Wiley.

Biesanz, J., and Biesanz, M. (1969). **Introduction to sociology**. Englewood Cliffs, New Jersey: Prentice-Hall.

Blau, P. (1970a). A formal theory of differentiation in organizations. **American Sociological Review** **35**, 201-218.

Blau, P. (1970b). Decentralization in bureaucracies. In M. Zald (Ed.) **Power in organizations**, 150-174. Nashville: Vanderbilt University Press.

Blau, P., and Schoenherr, R., Eds. (1971). **The structure of organizations**. New York: Basic Books.

Blau, P., and Schoenherr, R. (1973). **Ratios of California public school nonteaching employees to classroom teachers, as of November 1, 1970, 1971, and 1972**. Sacramento: California State Department of Education, Bureau of Administrative Research and District Organization.

Bock, W. (1974). **The Minnesota Developmental Programming System**. Minneapolis: Bock Associates.

Braddock, D., and Fujiura, G. (1991). Politics, public policy, and the development of community residential services in the United States. **American Journal of Mental Deficiency**, **95**, 369-387.

Braddock, D., Hemp, R., Fujiura, G., Bachelder, L., and Mitchell, M. (1990). **The state of the states in developmental disabilities**. Baltimore: Paul H. Brookes Publishing Co.

Bradley, V., Conroy, J., Covert, S., and Feinstein, C. (1986). **Community options: The New Hampshire choice**. Concord, NH: New Hampshire Developmental Disabilities Council.

Burchard, S.N., Hasazi, J.E., Gordon, L.R., & Yoe, J. (1991). An examination of lifestyle and adjustment in three community residential alternatives. **Research in Developmental Disabilities**, **12**, 127-142.

Butterfield, E. (1976). Some basic changes in residential facilities. In R. B. Kugel and A. Shearer (Eds.), **Changing patterns in residential services for the mentally retarded**. Washington, DC: President's Committee on Mental Retardation, U.S. Government Printing Office, 1976, 15-34.

California Department of Developmental Services (1978). **The Client Development Evaluation Report: Handbook**. Sacramento: California Department of Developmental Services.

Campbell, D., and Stanley, J. (1966). **Experimental and Quasi-Experimental Designs for Research**. New York: Houghton-Mifflin.

Campbell, D.T. (1967). Reforms as experiments. **American Psychologist**, **24**, 409-429.

Caplow, T. (1957). Organizational size. **Administrative Science Quarterly**, **1**, 484-505.

Carter, L., Haythorn, W., Meirowitz, B., and Lanzetta, J. The relations of categorizations and ratings in the observation of group behavior. **Human Relations**, **4**, 239-254.

Castellani, P. (1987). **The Political Economy of Developmental Disabilities**. Baltimore: Paul H. Brookes.

Center on Human Policy (1979). **The community imperative: A refutation of all arguments in support of institutionalizing anybody because of mental retardation**. Syracuse: Syracuse University, Center on Human Policy.

Clegg, S., and Dunkerly, D. (1980). **Organization, class, and control**. Boston: Routledge and Kegan Paul.

Conroy, J. (1977). Trends in deinstitutionalization of the mentally retarded. **Mental Retardation**, **15**, 44-46.

Conroy, J. (1996). The Small ICF/MR Program: Dimensions of Quality and Cost. **Mental Retardation**, **34 (1)**, 13-26.

Conroy, J., and Bradley, V. (1985). **The Pennhurst Longitudinal Study: A report of five years of research and analysis**. Philadelphia: Temple University Developmental Disabilities Center. Boston: Human Services Research Institute.

Conroy, J., Covert, S., and Dickson, M. (1991). **Independent Assessment of New Hampshire's Home and Community Based Waiver Services for People with Developmental Disabilities**. Prepared for the New Hampshire Division of

Mental Health and Developmental Services, Bureau of Community Developmental Services. Narberth, PA: Conroy & Feinstein Associates.

Conroy, J., and Feinstein, C. (1990a). A new way of thinking about quality. In: V. Bradley & H. Bersani (Eds.) **Quality assurance for individuals with developmental disabilities: It's everybody's business**. Baltimore: Paul H. Brookes.

Conroy, J., and Feinstein, C. (1990b). Measuring quality of life: Where have we been, where are we going? In: R. Schalock & M. Begab (Eds.) **Quality of life: Perspectives and issues**. Monograph Number 12. Washington: American Association on Mental Retardation.

Conroy, J., Feinstein, C., and Lemanowicz, J. (1988). **Results of the longitudinal study of CARC v. Thorne class members**. The Connecticut Applied Research Project, Report Number 7, to the Connecticut Department of Mental Retardation. Philadelphia: Conroy & Feinstein Associates.

Conroy, J., Feinstein, C., Lemanowicz, J., Devlin, S., and Metzler, C. (1990). **The report on the 1990 National Consumer Survey**. Washington DC: National Association of Developmental Disabilities Councils.

Conroy, J., Feinstein, C., Lemanowicz, J., and Kopatsis, M. (1985). Medical needs of institutionalized mentally retarded persons: Perceptions of families and staff members. **American Journal of Mental Deficiency, 89**, 510-514.

Conroy, J., Fullerton, A., Brown, M., & Garrow, J. (2002, December). ***Outcomes of the Robert Wood Johnson Foundation's National Initiative on Self-Determination for Persons with Developmental Disabilities: Final Report on 3 Years of Research and Analysis***. Submitted to the Robert Wood Johnson Foundation as the Impact Assessment of the Foundation's National Initiative entitled Self-Determination for Persons with Developmental Disabilities. Narberth, PA: Center for Outcome Analysis.

Conroy, J., Lemanowicz, J., and Feinstein, C. (1987). **Pennhurst class members in CLAs: The views of the families in 1986, and changes from 1985 to 1986**. Report to Pennsylvania Office of Mental Retardation. Philadelphia: Temple University Developmental Disabilities Center/UAP.

Conroy, J., Lemanowicz, J., Feinstein, C., and Bernotsky, J. (1991). **1990 Results of the CARC v. Thorne Longitudinal Study.** The Connecticut Applied Research Project, Report Number 10, to the Connecticut Department of Mental Retardation. Narberth, PA: Conroy & Feinstein Associates

Cooper, H. (1989). Does reducing student-to-instructor ratios affect achievement? **Educational Psychologist, 24**, 79-98.

Coser, L. (1965). **Makers of modern social science: Georg Simmel.** Englewood Cliffs, New Jersey: Prentice-Hall.

Craig, E.M., and McCarver, R.B. (1984). Community placement and adjustment of deinstitutionalized clients: Issues and findings. In: N. Ellis & N. Bray (Eds.), **International review of research in mental retardation**, Volume 12. Orlando: Academic Press.

Dagleish, M., and Matthews, R. (1981). Some effects of staffing levels and group size on the quality of day care for severely mentally handicapped adults. **British Journal of Mental Subnormality, 27**, 30-35.

Dalton, D., Todor, W., Spendolini, M., Fielding, G., and Porter, L. (1980). Organization structure and performance: A critical review. **Academy of Management Review, 5**, 49-64.

Damkot, D., Pandiani, J., and Gordon, L. (1983). Development, implementation, and findings of a continuing client satisfaction survey. **Community Mental Health Journal, 19**, 265-278.

Devlin, S. (1989). **Reliability assessment of the instruments used to monitor the Pennhurst plaintiff class members.** Philadelphia: Temple University Developmental Disabilities Center.

Durkheim, E. (1933). **The division of labor in society.** Translated by George Simpson. New York: The Free Press.

Educational Research Service (1978). **Class size: A summary of research.** Arlington, VA: Educational Research Service.

Educational Research Service (1980). **Class size research: A critique of recent meta-analyses.** Arlington, VA: Educational Research Service.

Ellis, N. (1979). The Partlow case: A reply to Dr. Roos. *Law and Psychology Review*, 5, 15-30.

Federal Register (1988). **Announcement of priorities for discretionary grants, Office of Human Development Services.** March 17, 1988, pages 2088-2089.

Felce, D., de Kock, U., and Repp, A. (1986). An eco-behavioral analysis of small community-based houses and traditional large hospitals for severely and profoundly mentally handicapped adults. ***Applied Research in Mental Retardation*, 7, 393-408.**

Felce, D., & Perry, J. (1995). The extent of support for ordinary living provided in staffed housing: The relationship between staffing levels, resident characteristics, and resident activity patterns. ***Social Science and Medicine*, 40, 799-810.**

Felce, D., & Repp, A. (1992). The behavioral and social ecology of community houses. ***Research in Developmental Disabilities*, 13, 27-42.**

Flynn, R.J., and Heal, L.W. (1981). A short form of PASS 3: A study of its structure, interrater reliability, and validity for assessing normalization. ***Evaluation Review*, 5, 357-376.**

Frank, F., and Anderson, L. (1971). Effects of task and group size upon group productivity and member satisfaction. ***Sociometry*, 34, 135-149.**

Freeman, J., and Hannan, M. T. (1975). Growth and decline processes in organizations. ***American Sociological Review*, 40, 318-327.**

Gardner, J. (1986). Implementation of the home and community-based waiver. ***Mental Retardation*, 24, 18-26.**

Gibb, C. (1951). The effects of group size and of threat reduction upon creativity in a problem-solving situation. ***American Psychologist*, 6, 324-328.**

Gilhool, T. (1975). Personal communication.

Glass, G., Cahen, L., Smith, M., and Filby, N. (1982). **School class size.** Beverly Hills: Sage.

Glass, G., and Smith, M. (1978). **Meta-analysis of research on the relationship of class size and achievement.** San Francisco: Far West Laboratory for Educational Research and Development.

Goffman, E. (1957). The characteristics of total institutions. In: **Symposium on Preventive and Social Psychiatry.** Washington DC: Walter Reed Army Institute of Research.

Goffman, E. (1961). **Asylums.** New York: Doubleday-Anchor.

Gooding, R., and Wagner, J. (1985). A meta-analytic review of the relationship between size and performance: The productivity and efficiency of organizations and their subunits. **Administrative Science Quarterly, 30,** 462-481.

Grossman, H.J. (1983). **Classification in mental retardation.** Washington DC: American Association on Mental Deficiency.

Gutek, B. (1978). Strategies for studying client satisfaction. **Journal of Social Issues, 34,** 265-280.

Haney, J. (1988). Empirical support for deinstitutionalization. In: Heal, L., Haney, J., and Novak Amado, A. (Eds.) **Integration of developmentally disabled individuals into the community.** Baltimore: Paul H. Brookes.

Hare, A. (1952). Interaction and consensus in different sized groups. **American Sociological Review, 17,** 261-267.

Harris, J., Veit, S., Allen, G., and Chinsky, J. (1974). Aide-resident ratio and ward population density as mediators of social interaction. **American Journal of Mental Deficiency, 79,** 320-326.

Hedges, L., and Stock, W. (1983). The effect of class size: An examination of rival hypotheses. **American Educational Research Journal, 20,** 63-85.

Hemphill, J. (1950). Relations between the size of the group and the behavior of "superior" leaders. **Journal of Social Psychology, 32,** 11-22.

Hewitt, D., and Parfit, J. (1953). A note on working morale and size of group. **Occupational Psychology**, **27**, 38-42.

Hile, M., and Walbran, B. (1991). Observing staff-resident interactions: What staff do, what residents receive. **American Journal of Mental Deficiency**, **29**, 35-41.

Homans, G. (1950). **The human group**. New York: Harcourt, Brace & Co.

Howe, S.G. (1866). **In ceremonies on laying the corner-stone of the New York State institution for the blind, at Batavia, Genessee County, New York**. Batavia, N.Y.: Henry Todd, 1866.

Hunter, J., Schmidt, F., and Jackson, G. (1982). **Meta-analysis: Cumulating research findings across studies**. Beverly Hills, CA: Sage.

James, J. (1951). A preliminary study of the size determinant in small group interaction. **American Sociological Review**, **16**, 474-477.

Jones, P., Conroy, J., Feinstein, C., and Lemanowicz, J. (1985). A matched comparison of cost effectiveness: institutionalized and deinstitutionalized people. **Journal of the Association for Persons with Severe Handicaps**, **9**, 304-313.

Klaber, M. (1969). The retarded and institutions for the retarded - A preliminary research report. In S.B. Sarason & J. Doris (Eds.), **Psychological problems in mental deficiency (Fourth Edition)**. New York: Harper & Row.

Kim, S. Larson, S. & Lakin, C. (2001, March). Behavioral outcomes of deinstitutionalization for people with intellectual disability: a review of US studies conducted between 1980 and 1999. **Journal of Intellectual and Developmental disabilities**, **Vol. 26, No. 1**, pp. 15-34.

Kimberly, J. (1976). Organizational size and the structuralist perspective: A review, critique, and proposal. **Administrative Science Quarterly**, **21**, 571-597.

King, R., Raynes, N., and Tizard, J. (1971). **Patterns of residential care: Sociological studies in institutions for handicapped children**. London: Routledge and Kegan Paul.

Kohler, O. (1927). Cited in Krech, D., Crutchfield, R., and Ballachey, E. (1962). **Individual in society: A textbook of social psychology**. New York: McGraw-Hill.

Moseley, C., Bradley, V., & Lakin, K. (2010). **National Core Indicators: Managing Quality, Setting Benchmarks, and Tracking Performance**. National Association of State Directors of Developmental Disabilities Services. Presentation to the Interagency Autism Coordinating Committee, Services Subcommittee, October 2010. Rockville, MD.

Lakin, K.C., and Bruininks, R.H. (1985). Contemporary services for handicapped children and youth. In R.H. Bruininks & K.C. Lakin (Eds.), **Living and learning in the least restrictive environment** (pp. 3-22). Baltimore: Paul H. Brookes Publishing Co.

Lakin, K.C., Doljenac, R., Byun, S., Stancliffe, R.J., Taub, S., & Chiri, G. (2008a). Choice-Making Among Medicaid HCBS and ICF/MR Recipients in Six States. *American Journal On Mental Retardation Volume 113, Number 5*: 325–342.

Lakin, K.C., Doljanac, R., Byun, S., Stancliffe, R.J., Taub, S., & Chiri, G. (2008b). Factors Associated With Expenditures for Medicaid Home and Community Based Services (HCBS) and Intermediate Care Facilities for Persons With Mental Retardation (ICF/MR) Services for Persons With Intellectual and Developmental Disabilities. *Intellectual And Developmental Disabilities, Volume 46, Number 3*: 200–214.

Lakin, K.C., Hill, B.K., and Bruininks, R.H. (Eds.). (1985). **An analysis of Medicaid's Intermediate Care Facilities for the Mentally Retarded (ICF/MR) Program**. Minneapolis: University of Minnesota, Department of Educational Psychology.

Lakin, K.C., Krantz, G.C., Bruininks, R.H., Clumpner, J.L., and Hill, B.K. (1982). One hundred years of data on populations of public residential facilities for mentally retarded people. **American Journal of Mental Deficiency, 87**, 1-8.

Lakin, K.C., White, C.C., Hill, B.K., Bruininks, R.H., and Wright, E.A. (1990). Longitudinal change and interstate variability in the size of residential facilities for persons with mental retardation (Brief Report No. 28). **Mental Retardation, 28**, 343-352.

Landesman, S. (1987). The changing structure and function of institutions: A search for optimal group care environments. In: S. Landesman & P. Vietze (Eds.), **Living Environments and Mental Retardation**. Washington: American Association on Mental Retardation.

Landesman-Dwyer, S., Berkson, B., and Kleinman, J. (1979). Affiliation and friendship of mentally retarded residents in group homes. **American Journal of Mental Deficiency, 8**, 571-580.

Landesman-Dwyer, S., Sackett, G., and Kleinman, J. (1980). Relationship of size to resident and staff behavior in small community residences. **American Journal of Mental Deficiency, 85**, 6-17.

Larson, S., and Lakin, C. (1989). Deinstitutionalization of persons with mental retardation: Behavioral outcomes. **Journal of the Association for Persons with Severe Handicaps, 14**, 324-332.

Larson, S., and Lakin, C. (1991). Parent attitudes about residential placement before and after deinstitutionalization: A research synthesis. **Journal of the Association for Persons with Severe Handicaps, 16**, 25-38.

Laski, F. (1985). Right to habilitation and right to education: The legal foundation. In R.H. Bruininks & K.C. Lakin (Eds.), **Living and learning in the least restrictive environment** (pp. 67-79). Baltimore: Paul H. Brookes Publishing Co.

LeBow, J. (1983a). Client satisfaction with mental health treatment: Methodological considerations in assessment. **Evaluation Review, 7**, 729-752.

LeBow, J. (1983b). Research assessing consumer satisfaction with mental health treatment. **Evaluation and Progressive Planning, 6**, 211-236.

Lemanowicz, J., Feinstein, C., Efthimiou, J., and Conroy, J. (1980). **A report on client progress at Pennhurst** (Pennhurst Study Report PC-80-4). Philadelphia: Temple University Developmental Disabilities Center/UAP.

Lorefice, L., and Borus, J. (1984). Consumer evaluation of community mental health services. **American Journal of Psychiatry, 141**, 1449-1452.

Mann, F., and Baumgartel, H. Absences and employee attitudes in an electric power company. Ann Arbor: Survey Research Center, Institute for Social Research, University of Michigan. Cited in Krech, D., Crutchfield, R., & Ballachey, E. (1962), **Individual in Society**. New York: McGraw-Hill.

Marsh, R., and Mannari, H. (1989). The size imperative? Longitudinal tests. **Organization Studies**, **10**, 83-94.

McCann, B. (1984). **Issues of concern regarding Senate bill 2053: The sanctity of size**. Unpublished manuscript.

McCormick M., Balla, D., and Zigler, E. (1975). Resident-care practices in institutions for retarded persons. **American Journal of Mental Deficiency**, **80**, 1-17.

McLain, R., Silverstein, A., Hubbell, M., and Brownlee, L. (1975). The characterization of residential environments within a hospital for the mentally retarded. **Mental Retardation**, **13**, 24-27.

Melman, S. (1951). The rise of administrative overhead in the manufacturing industries of the United States 1889-1947. **Oxford Economic Papers**, **3**, 52-112.

Mercer, J.R. (1973a). The myth of 3% prevalence. In: Eyman, R., Meyers, C. & Tarjan, G. (Eds.), **Sociobehavioral studies in mental retardation**. Washington DC: American Association on Mental Deficiency.

Mercer, J.R. (1973b). **Labeling the mentally retarded**. Berkeley, CA: University of California Press.

Meyers, C.E., and Blacher, J. (1987). Historical determinants of residential care. In: S. Landesman & P. Vietze (Eds.), **Living Environments and Mental Retardation**. Washington: American Association on Mental Retardation.

Miller, G. (1956). The magical number seven, plus or minus two: Some limits on our capacity for processing information. **The Psychological Review**, **63**, 81-97.

Miller, N. (1950). Effects of group size on group process and member satisfaction. Proceedings of the Administration Conference, University of Michigan,

Ann Arbor. Cited in Krech, D., Crutchfield, R., & Ballachey, E. (1962), **Individual in Society**. New York: McGraw-Hill.

Moos, Lemke, and Mehren (1979). **Multiphasic Environmental Assessment Procedure**. Palo Alto, CA: Social Ecology Laboratory.

Nowell, N., Baker, D., and Conroy, J. (1989). **The Provision of Community Medical Care in Philadelphia and Northeastern Pennsylvania for People who live in Community Living Arrangements and with Their Families**. Philadelphia: Northwest Center.

O'Connor, G. (1976). **Home is a good place: A national perspective of community residential facilities for developmentally disabled persons**. Washington, DC: American Association on Mental Deficiency, Monograph Number 2.

Olson, M. (1965). **The logic of collective action: Public goods and the theory of groups**. Cambridge: Harvard University Press.

Pirsig, R. M. (1974). **Zen and the art of motorcycle maintenance**. New York; Bantam.

Popenoe, D. (1983). **Sociology: Fifth Edition**. Englewood Cliffs, New Jersey: Prentice-Hall.

Pratt, M. (1979). **Group Home Management Schedule**. Unpublished: New York State Office of Mental Retardation and Developmental Disabilities.

President's Panel on Mental Retardation (1962). **A proposed program for national action to combat mental retardation**. Washington, D.C.: U.S. Government Printing Office.

RTC/IL (1987). **Guidelines for Reporting and Writing About People with Disabilities**. Lawrence, Kansas: Research and Training Center on Independent Living, University of Kansas.

Raynes, N., Pratt, M., and Roses, S. (1979). **Organisational structure and the care of the mentally retarded**. New York: Praeger Publishers.

Rice, J. (1902). Educational research: A test in arithmetic. **The Forum**, **34**, 281-297.

Robertson, I. (1987). **Sociology: Third Edition**. New York: Worth Publishing.

Schalock, R. (1989). **The Quality of Life Questionnaire**. Hastings, Nebraska: Author.

Schalock, R.L. (1994). **The concept of quality of life and its current applications in the field of mental retardation/developmental disabilities**. In D. Goode (Ed.) *Quality of Life for Persons with Disabilities: International Perspectives and Issues* (pp. 266-284). Cambridge, MA: Brookline Books.

Schalock, R., Keith, K., Hoffman, K., and Karan, O. (1989). Quality of life: Its measurement and use. **Mental Retardation**, **27**, 25-31.

Schalock, R., Lemanowicz, J., Conroy, J., & Feinstein, C. (1994). A Multivariate Investigative Study Of The Correlates Of Quality Of Life. **Journal on Developmental Disabilities**, **3** (2), 59-73.

Scheerenberger, R. (1983). **A history of mental retardation**. Baltimore: Paul H. Brookes.

Schumacher, E. (1973). **Small is beautiful**. New York: Harper & Row.

Seashore, S. (1954). **Group cohesiveness in the industrial work group**. Ann Arbor: Survey Research Center, Institute for Social Research, University of Michigan. Cited in Krech, Crutchfield, & Ballachey, (1962), **Individual in Society**. New York: McGraw-Hill.

Shepherd, C. (1964). **Small groups: Some sociological perspectives**. Scranton, PA: Chandler Publishing.

Slater, P. (1958). Contrasting correlates of group size. **Sociometry**, **21**, 129-139.

Slater, V., Linn, M., and Harris, R. (1982). A satisfaction with mental health care scale. **Comprehensive Psychiatry**, **23**, 68-74.

Slavin, R. (1984). Meta-analysis in education: How has it been used? **Educational Researcher**, **13**, 6-15.

Slavin, R. (1989). Class size and student achievement: Small effects of small classes. **Educational Psychologist**, **24**, 99-110.

Smith, G., Katz, R., and Gettings, R. (1989). **Medicaid home and community-based services for persons with developmental disabilities: The home and community-based waiver experience**. Alexandria, VA: National Association of State Mental Retardation Program Directors, Inc.

Smith, M., and Glass, G. (1980). Meta-analysis of research on class size and its relationship to attitudes and instruction. **American Educational Research Journal**, **17**, 419-433.

Snyder, N. (1975). An experimental study on optimum group size. **Dissertation Abstracts International V36(12)**, SECA, PP8302. University of Pittsburgh Ph.D., 186 pages.

Stancliffe, R. J. (1997). Community living-unit size, staff presence, and residents' choice-making. *Mental Retardation*, **35(1)**, 1-9.

Stancliffe, R.J., Abery, B.H., & Smith, J. (2000). Personal control and the ecology of community living settings: Beyond living-unit size and type. **Mental Retardation**, **105**, 131-154.

Stancliffe, R.J., Lakin, K.C., Doljenac, R., Byun, S., Taub, S., & Chiri, G. (2007). Loneliness and Living Arrangements. *Intellectual and Developmental Disabilities*, **Volume 45, Number 6**: 380–390 December 2007

Steiner, I. (1966). Models for inferring relationships between group size and potential group productivity. **Behavioral Science**, **11**, 273-283.

Stull, J., Conroy, J., and Lemanowicz, J. (1990a). **Deinstitutionalization of People with Severe and Profound Mental Retardation in Connecticut: Benefits and Costs**. The Connecticut Applied Research Project, Report Number 9, to the Connecticut Department of Mental Retardation. Narberth, PA: Conroy & Feinstein Associates.

Taylor, H., Kagay, M., and Leichenko, S. (1986). **The ICD Survey of Disabled Americans**. Conducted by Louis Harris and Associates. New York: The International Center for the Disabled, and Washington, DC: National Council for the Handicapped.

Terrien, F. W., and Mills, D. L. (1955). The effect of changing size upon the internal structure of organizations. **American Sociological Review**, **20**, 11-30.

Thomas, E., and Fink, C. (1963). Effects of group size. **Psychological Bulletin**, **60**, 371-384.

Tossebro, J. (1995). Impact of size revisited: Relation of number of residents to self-determination and deprivatization. *American Journal on Mental Retardation*, *Vol 100(1)*, 59-67.

University of Minnesota (2006). **Medicaid Home and Community-Based Services for Persons with Intellectual and Developmental Disabilities: Background and Findings from Consumer Interviews and the Medicaid Statistical Information Systems**. Minneapolis-St. Paul: The University of Minnesota, Research and Training Center on Community Living.

Van Der Zander, J. (1986). **Sociology: The core**. New York: Knopf Publishing.

Ward, R. (1987). HMO satisfaction and understanding among recent medicare enrollees. **Journal of Health and Social Behavior**, **28**, 401-412.

Willer, B., and Intagliata, J. (1984). An overview of the social policy of deinstitutionalization. In: N. Ellis & N. Bray (Eds.), **International review of research in mental retardation, Volume 12**. Orlando: Academic Press.

Williams, J.A., editor (1961). **Islam**. New York: George Braziller.

Wolfensberger, W. (1972). **The principle of normalization in human services**. Toronto: National Institute on Mental Retardation.

Wolfensberger, W. (1975). **The origin and nature of our institutional models**. Syracuse: Human Policy Press.

Wolfensberger, W., and Glenn, L. (1975). **Program analysis of services 3: A method for the quantitative evaluation of human services.** Toronto: National Institute on Mental Retardation.

Wolff, K. (1950). **The sociology of Georg Simmel: Translated, edited, and with an introduction by Kurt H. Wolff.** New York: The Free Press.

Worthy, J.C. (1950). Organizational structure and employee morale. **American Sociological Review, 15,** 169-179.

Appendix A: Sociological Literature on Group Size

Literature Review on Group Size from the Sociological Tradition²⁵

People have always asked themselves major questions that are related to the issue of group size:

- How many roommates should I have in college?
- Which is better, a small family with one or two children, or a large one with more?
- Should I have a big wedding or a small one?
- Will I be happier working for a large company or a small one?
- How big can a club be before it needs to split up into two chapters?
- What is the best size group of laborers?
- How many soldiers should be in a combat unit?
- What is the best size committee for decision-making?
- What is the best size committee for member satisfaction and enjoyment?
- What really happens as groups get bigger - does specialization increase, and do interpersonal interactions become more formal?

In modern times, people have usually turned to the field of sociology for answers to questions of this kind. Indeed, there are treatments of group size in nearly all of the modern sociology textbooks.

Sociological interest in the question of group size is best traced to the work of German sociologist Georg Simmel (1858-1918). Most of his writings on the sociology of groups were completed around the turn of the century, but the translations of Kurt Wolff (Wolff, 1950) made Simmel's work widely accessible to English speaking sociologists.

The headings within Simmel's seminal essay "Quantitative Aspects of the Group" are illustrative of his interest in the size issue:

- I. *On the significance of numbers for social life*
- II. *The quantitative determination of group divisions and of certain groups*
- III. *The isolated individual and the dyad*
- IV. *The triad*
- V. *The importance of specific numbers for relations among groups*

²⁵ Adapted and extended from Conroy, J. (1992). *Size and Quality in Residential Programs for People with Developmental Disabilities*. A Dissertation Submitted to the Temple University Graduate Board in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy. Philadelphia: Temple University.

In this essay, Simmel tried to write a “grammar of social life” (Coser, 1965) by considering one of the most abstract characteristics of groups, that is, the mere number of participants. He described the characteristics of dyads and triads, and showed how qualitative differences in interaction patterns inevitably occurred simply as the result of numbers.

Simmel noted that a dyad differs from all other groups in that its members have to interact directly with one another. If one member ceases to pay attention, interaction stops. If either member withdraws from the group, there is no group. The dyad can develop a sense of unity and intimacy not found in larger groups, but the dyad can be fragile, and requires continual efforts by both parties to be maintained.

Addition of another person to form a triad alters the situation significantly. Any one member can ignore the conversation of the others without destroying the group’s interaction. The third member can function as a stabilizing and mediating influence for the other two; alternatively, the third member may become an “intruder.” Two members can ally against the third, so that feelings of isolation and persecution are possible in a triad. In general, Simmel believed the triad was the most fragile sized group because of the almost inevitable “two against one” situations.

Simmel discussed the properties of interactions within dyads and triads in contexts as diverse as marriages (dyad), mothers-in-law with marriages (triad), neighboring serfdoms in Europe (dyads), and Rome, Sparta, and Athens (a triad in which Rome constantly destabilized the relationship between the two Greek cities.)

After the triad level, Simmel’s treatment ceased to discuss specific numbers. He believed that it would be theoretically possible to describe the unique characteristics of each size group, up to the teens at least, but he also believed that the effort required, and the length of the descriptions, would be beyond feasibility. Ultimately, he concluded that group size would be related to group behavior no matter who was in the group or what its purpose was. Thus, for Simmel, size was truly a fundamental property of any group. Much of Simmel’s effort on this topic was devoted to understanding why, and by what mechanisms, group size influenced group behavior, but stopped at the triad level.

Although Simmel stopped explicit group size descriptions at size three, it is interesting to note that certain religious writings have gone somewhat further. The Koran contains very specific advice about group size where wives are concerned:

...take in marriage of such other women as please you, two, or three, or four, and not more.

Williams (1961), the translator of this edition of the Koran, explained that the law required that a man treat each wife equally. However, the Prophet maintained that with two wives, equal treatment would be very difficult because of competition. In Simmel's terms, the triad would be unstable. With three wives, life would also be difficult because two of the wives would probably unite against the third, in another variation on Simmel's triad theme. With four wives, the odds were even for harmony. Two might side against the other two, but none would be completely isolated in most cases. Interestingly enough, this meant a total group size of five, a number that will appear again later in this section. The Koran analysis stops at total group size five, because more than four wives was simply forbidden as being "unreasonable" for one man. The fact that dogmatic statements about ideal group size were made more than a millennium ago is further evidence of the continuing interest in the size issue.

Although it was not possible for Simmel to demonstrate that each successive addition of a new member would produce a distinct sociological configuration (as he did for the dyad and the triad), he did show that there were crucial differences between small groups and larger ones. He contended that, as more and more members were added, the nature of interactions necessarily continued to change. Many of the changes were related to the phenomenon of division of labor.

Although Durkheim did not mention group size as an explicit consideration in the phenomenon of division of labor (Durkheim, 1933), Simmel did. He believed that division of labor inevitably increased with group size, and that the character of the interactions in the group changed as well. As translated by Wolff,

It will immediately be conceded on the basis of everyday experiences, that a group upon reaching a certain size must develop forms and organs which serve its maintenance and promotion, but which a smaller group does not need. On the other hand, it will also be admitted that smaller groups have qualities, including types of interaction among their members, which inevitably disappear when the groups grow larger. (Page 87.)

In the small group, the contribution of each to the whole and the group's reward to him are visible at close range; comparison and compensation are easy. In the large group they are difficult, especially because of the inevitable differentiation of its members, of their functions, and claims. A very large number of people can constitute a unity only if there is a complex division of labor. (Page 88.)

In a similar manner, the large group gains its unity, which finds expression in the group organs and in political notions and ideals, only at the price of a great distance between all of these structures and the individual. In the social life of the small group, by contrast, the individual's views and needs are directly effective, are objects of immediate consideration. (Page 96-97.)

Simmel clearly perceived tradeoffs inherent in increasing group size. With greater size, he believed, came greater specialization of function, and correspondingly less “wholeness” of personal identities, less equality, and less warmth of interactions.

In small groups, members tend to be able to interact directly with one another. Once the group exceeds a relatively limited size, such interaction must be mediated through formal arrangements. In the words of Coser (1965):

In order to come to grips with the increasing complexity of relationships among large numbers of individuals, the group must create special organs to help the patterning of interactions among its members. Thus, no large group can function without the invention of offices, the differentiation of status positions, and the delegation of tasks and responsibilities. This is why larger groups must be societies of unequals: in order to maintain themselves, they must be structurally differentiated.

Simmel was also apparently the first to discuss the phenomenon of subgroup formation. As a human group expands, there is a necessity for subgroups to form. Simmel explained this through the example of a “party.” As Simmel evidently observed in his own experience, the first few people to arrive at a party tend to interact with each other in a single intimate cluster. But as people continue to arrive, some of the members come to dominate the discussion, and others do not speak at all. This is usually seen when about six to twelve people are present. The members who are not speaking become dissatisfied with their involvement, and strike up side conversations with the people next to them. As the party continues, the original group almost inevitably fragments into smaller groupings, within each of which, each member has a chance to participate verbally.

Although the party may not intuitively seem to be a representative social situation, it has one very crucial aspect: the people are usually there to enjoy themselves. Thus it is one of the best possible situations in which to see what people will do when following their own preferences. It seems clear that most people prefer to be in situations in which they can participate comfortably, and that generally appears to involve small numbers of associates rather than a large “audience.”

It is worth noting that sociologists have concluded that the vast majority of our interaction with other human beings occurs in very small groups. Sociologist

John James (1951) and his students observed 7,405 informal interactions of pedestrians, playground users, swimmers, and shoppers, and 1,458 people in a variety of work situations. They found that 71 percent of both the informal and work interactions consisted of two people; 21 percent involved three people; 6 percent included four people; and only 2 percent entailed five or more people.

The crude question “Are small groups or large groups more effective?” can at best yield crude answers. The answer must depend on the type of task, the kinds of members, the time available, and other variables such as the characteristics of the environment in which the group meets. Kohler (1927) reported that in a tug of war, a bigger group can pull harder than a smaller group (not a great shock), but also found that the total team pulling power did not increase in direct proportion to the number of people on the team. As each new person up to 12 was added, each of the members pulled about 10% less energetically.

This simple finding implies that it is necessary to probe deeply into complex patterns of intervening variables to fully understand the why of the relationship between group size and any kind of effectiveness. We need to ask why the addition of another team member might have influenced the motivation of the other members, the group structure and cohesiveness, and/or the leadership of the team. What are the mechanisms through which size can affect other group variables?

This kind of finding is related to Olson’s theoretical discussion of the fundamental variable that goes with size of groups, which he said is the visibility of each member’s contribution to the common good (Olson, 1965). As he put it,

... any group or organization, large or small, works for some collective benefit that by its very nature will benefit all of the members of the group. Though all of the members of the group therefore have a common interest in obtaining this collective benefit, they have no common interest in paying the cost of providing that collective good. Each would prefer that the others pay the entire cost. (Page 21)

Olson then defined three kinds of group in relation to this variable: “privileged,” “intermediate,” and “latent.” These three varied in the amount of incentive for each member to help pay the cost of obtaining the common good. He used these concepts in an analysis that concluded that “small groups are not only quantitatively, but qualitatively, different from large groups” (page 52).

For the current topic, the most germane implication of Olson’s analysis was that, in general, the larger the group, the less the incentives for individual members to contribute to the common good. In the very large “latent” group, an individual “cannot make a noticeable contribution to any group effort, and since no one in the

group will react if he makes no contribution, he has no incentive to contribute” (page 50). This could apply to very large group living situations for people with intellectual disabilities. Each individual staff person in an institution would experience a weaker incentive (to work hard for the common good) than in a three person group home.

Simmel suggested that interactions within small groups would prove to be an important subject for future sociological research. This suggestion was neglected until after World War II, when Robert Bales and others initiated a tradition of laboratory studies of small group processes (Bales, 1950; Hare, 1952; Homans, 1950). Although such laboratory studies of primarily white male college students have been criticized for their lack of generalizability to other populations and to “real life,” this body of research is still highly influential. Group size, while not a primary research concern in this tradition, was touched upon by nearly every small group researcher.

Bales, Strodtbeck, Mills, and Roseborough (1951) collected data on the distribution of participation among members of one kind of creative group, the discussion group. Their findings suggested that as the size of the group increased, the most frequent contributor assumed a more and more prominent role in the discussion. The bigger the group, the bigger the gap between the most and the least frequent contributors. Communication apparently tends to centralize in one person in larger groups. Moreover, the number of group members who contribute less than their proportionate share goes up as the size of the group increases (at least within the range from two to seven). Anonymity and invisibility become more feasible as group size increases from two to seven.

Gibb (1951) found that the total number of ideas produced by groups engaged in creative tasks increased with size, but not proportionately. Just as in Kohler’s tug of war finding, there were diminishing returns from the addition of members. Gibb suggested that the mechanism of action for this phenomenon was the experience of inhibitions related to formalization and structure. As size increased, so did formal rules of participation. Gibb tested this by manipulating the rules of participation himself, and as formalization increased, fewer ideas were generated. The productivity of larger creative groups may suffer because of the shyness, inhibition, and resulting silence of the majority.

Both of these studies suggest that size influences member participation, which in turn influences one kind of effectiveness. Participation, then, is one

intervening variable that must be considered as a possible mechanism for relationships between size and effectiveness.

A second possible mechanism would involve leadership. The processes of leadership emergence and then of leadership style are almost certainly influenced by group size. Carter, Haythorn, Meirowitz, and Lanzetta (1951) found that the correlation between authoritarianism and leadership behavior increased as group size increased from four to eight. Hemphill (1950) compared leader behavior in groups above and below size 30. He found that in the larger groups there were greater demands upon the leaders, and that leader-centered behavior was tolerated by a higher proportion of the members.

Another possible mechanism mediating relationships between size and effectiveness is group cohesiveness and/or satisfaction. Worthy (1950) reported that surveys carried out by Sears, Roebuck and Company showed that both worker satisfaction and operating efficiency tended to decrease in larger administrative units. Seashore (1954) studied the cohesiveness of work groups in a large factory, and found that smaller groups (4 to 22) were more cohesive than larger groups. Mann and Baumgartel (1952) found that absenteeism increased with decreasing group cohesiveness among white collar workers. Hewitt and Parfit (1953) found that absenteeism in groups of 4 was one third of the rate in groups of 36, and one fourth the rate in groups of 128. Miller (1950) found large conference groups to be more disruptive than smaller ones. The feeling of a "sense of belonging" was correlated at $-.44$ with group size. Lack of opportunity to talk, which was correlated at $.80$ with group size, was associated with feelings of frustration.

Hare (1952) compared 5 and 12 person groups of Boy Scouts conducting a decision making task during a camping trip. Hare found that the 5 person groups arrived at higher levels of consensus. The larger group was felt to limit participation by leading some members to feel that their individual opinions were not sufficiently important to merit vocalizing.

In what appears to be the study that has been the most influential in the sociological literature on group size, Slater (1958) examined some correlates of group size in a sample of 24 "creative" groups of size four to size seven. After four meetings to discuss specific human relations problems and potential solutions, members were asked whether their group was too small or too large for maximum effectiveness.

Members of the five person groups expressed 100% satisfaction, never once saying their group was too large or too small. Members of larger groups said their groups were disorderly, wasted time, and some members were too aggressive or competitive. Larger group members sometimes called for more structure and central control, and sometimes called for less. Complaints about individuals dominating the entire group were common. In groups smaller than five, the sole complaint was that the group was too small. Direct observation suggested that members were inhibited from completely free expression of ideas because they were afraid of alienating one another and creating an unpleasant atmosphere.

The size issue was prominent in the 1980 examination of organizations by Clegg and Dunkerley (1980). Clegg and Dunkerley reviewed mentions of the size issue by Simmel, Merton, Selznick, Homans, James, and so forth. The flavor of the Clegg and Dunkerley treatment includes the notion of increasing “rulemaking” with increasing size, and regimentation along with that. In some sections of the book they substitute the word “formalization” for this tendency. Decreases in personal relations were also to be expected. They believed that bureaucracy was both more likely to appear and more appropriate for larger organizations. On page 223, they discussed the difficulties with operationalizing size, and noted that researchers had used widely different measures, which made it difficult to compare the results available in the literature. In the review of purely organizational literature of this paper, we will see this comment mirrored in the Gooding and Wagner (1985) meta-analysis of empirical studies.

The sum of these sociological studies seems to be that people tend to be happier in smaller groups. However, for some tasks, groups can be too small, even when satisfaction/happiness is the index of effectiveness.

At the same time that these pioneering post-War sociological studies explored the effects of group size upon a variety of variables related to effectiveness, an organizational literature, more oriented toward business and practical concerns, developed concerning size and “productivity.” A full review of the organizational research literature will be presented next, in the literature review labeled Organizational and Industrial Psychology.

The review of sociological interest and research shows that questions about group size have been a major concern in the development of modern sociology. Beginning with Simmel, continuing right into the content of the most recent introductory textbooks, and covering nearly 100 years, it is clear that group size has been a major concern of sociologists. The scientific evidence about group size

and group effectiveness gives a complex picture, probably because of the many and varied approaches to measuring effectiveness. However, a consensus from the sociological literature does seem to emerge: human beings tend to prefer to live, work, and play in small rather than large groups. The preferred group size is clearly below 10, but beyond that, the evidence is not yet conclusive.

This sociological tradition and interest in group size is in some ways to be quite relevant to the issue of residential program size. In particular, these findings suggest useful insights into the question of group homes for citizens with disabilities, in that within the small group size range, as size increases,

- People spontaneously interact in very small groups, mostly dyads or one on one (as in the direct observation of natural interactions research of James)
- People spontaneously subdivide their groups, rarely allowing them to exceed 5 or 6 (as in the party situation studies of Simmel)
- Participation via individual effort tends to decrease in a phenomenon often called ‘free riding’ (as in the tug of war studies of Kohler)
- Participation via communication tends to decrease and centralize, relying on increased leadership by the few, but allowing anonymity and silence by the many (as found by Bales et al.)
- Authoritarianism increases from group size four to eight, correlating with the emergence of leadership and of members becoming passive followers (in the work of Carter et al.)
- Satisfaction with group process may reach a ‘saddle point’ around size five (as in the famous and influential work of Slater)
- Satisfaction with group process falls off in groups above five, and keeps falling lower into the teens, where it levels off at a low state
- Increasing size is related to formalization, rulemaking, regimentation, bureaucratization, and decreases in personal relations (discussed by Clegg & Dunkerley)

Applying these sociological findings to the world of residential programs clearly implies that ‘small is good.’ However, there is insufficient evidence to draw conclusions about specific sizes of homes that are ‘too big.’ And, as is obvious from the beginning, there really cannot be a magic number for all groups and all kinds of people. One size will never fit all. Nevertheless, our effort here is to think in policy terms, covering thousands of people, in thousands of homes, and considering the averages of well being and quality across them. With that perspective, the sociological body of knowledge suggests that there is probably a

natural human break point somewhere between four and six. Group sizes that big can be tolerated, and can sometimes be effective and/or satisfying – but above that, we tend to lose the most desirable qualities of intimate and rewarding human interaction.

Appendix B: Organizational Psychology Literature on Group Size

Literature Review on Group Size from Organizational and Industrial Psychology²⁶

Another area that must be examined for relevant clues is the organizational effectiveness literature. Without doubt, the pyramid builders of ancient Egypt gave serious thought to the relationship between the size of a work group and its productivity. And before there were builders, there were warriors, who were probably even more concerned about how to “split up” to be “most effective.”

However, modern management and organizational theory do not extend their bibliographies so far back in history. Here we will trace some of the high points of a huge body of work on organizational size and effectiveness and administrative intensity, which has arisen mainly since 1951. This body of work incorporates a major scientific debate around a concept called the A/P ratio, the relative size of Administrative versus Production personnel within industries. Next we describe the methods and conclusions of what is arguably the “best” summary of the entire body of modern empirical research. In a summary, we interpret the relevance of this body of research for practical interests about the size of community residential programs.

First, a general comment: it seems that any relationship one cares to find, can be found, in the empirical literature. This is probably because of the bewildering variety of measures of size and effectiveness that have been used, and possibly for other reasons, such as varying theoretical frameworks and disciplines of the researchers. Only in the 1980s did significant clarity emerge via the application of meta-analysis (Hunter, Schmidt, & Jackson, 1982).

Melman (1951), interested in the relationship between organization size and “administrative intensity,” or the proportion of effort the organization devotes to self-maintenance, reviewed literature as far back as 1934 (Robinson, 1934). Melman examined data on American manufacturing industries from 1899 to 1947, and was evidently the first to identify the A-P ratio (the ratio of Administrative to Production personnel) and make the case that larger organizations have a relatively lower proportion of resources devoted to administrative functions than do smaller ones: “... *the largest asset-size firms have a manifest advantage with respect to*

²⁶ Adapted and extended from Conroy, J. (1992). *Size and Quality in Residential Programs for People with Developmental Disabilities*. A Dissertation Submitted to the Temple University Graduate Board in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy. Philadelphia: Temple University.

lower administrative expenditures per dollar of production expense than was the case for the smaller firms ...” (Page 90).

Soon after that article was published, the A-P ratio became the topic of one of the great debates in organizational theory, spilling over into management science, economics, social psychology, and sociology. According to one of the most recent analyses of the debate, “*The theory of size as a cause of administrative intensity (the A-P ratio) is perhaps the most heavily researched topic in the history of the study of organizations*” (Marsh & Mannari, 1989, page 83). The question of the A-P ratio is closely related to the question of effectiveness, because of the possibility that as administrative intensity increases, it may increase past the point of diminishing returns, and organizations may become “top-heavy” and wasteful rather than “lean” and efficient. It is therefore useful to review the A-P debate, albeit briefly, in responding to the question at hand.

Not long after the Melman article, Terrien and Mills (1955) published evidence that larger organizations had larger proportions devoted to administrative duties. Their conclusion was founded on analysis of 732 school districts in California. It was remarkably weak evidence for such a broad interpretation; but Terrien and Mills themselves never generalized beyond their narrow school district interpretation in the text of their article.

‘; In a review article that attempted to summarize a number of the empirical studies that had been generated in the period after Melman’s initial article, Caplow (1957) chose “group size” as a unifying concept. He considered simple mathematical interaction possibilities (combinations and permutations of the number of members of the group), and distinguished small, medium, large, and giant groups. He claimed that each had distinct characteristics. His analysis of the available evidence led him to the conclusion that size was correlated with the A-P ratio, and also with group stability, uniformity of organizational design, and the incidence of communication problems.

Caplow noted that “*There is an almost universal belief that the administrative and overhead components of any organization increase out of proportion to increases in its size*” (page 504). Caplow also made an intriguing observation on the length of the chain of command in large organizations, saying that downward and upward communication becomes awkward when there are “more than six or seven echelons” to be traversed. His choice of “six or seven” was not substantiated in the article, but was interesting in view of later management beliefs about the span of control.

Caplow's specific contribution to the quantitative debate was of limited value. As noted in the closing paragraph: "*We know just enough, in sum, about the effects of size on organizational structure to perceive that size is an important element in determining the way any human organization adapts to its environment and that the whole subject deserves closer study*" (page 505). Nevertheless, in later work, Caplow was almost always cited.

Slater (1958) concerned himself solely with group member satisfaction as his primary measure of group effectiveness. Although it should be considered a tenuous indicator of group effectiveness, for many kinds of tasks, group member feelings are critical for success. His group tasks involved collection and exchange of information about a situation, the coordination, analysis, and evaluation of this information, and a group decision about the best administrative decision in the situation. By interviewing and observing participants, he was able to describe what they felt were the major disadvantages of groups that were too small or too large.

Slater found that groups larger than size four were "never felt to be too small," and groups smaller than six were "never felt to be too large." Slater concluded that group size five was the most effective according to the dual criteria of successful task completion and member satisfaction. Slater's studies are among the most widely cited in the entire size literature. This is remarkable in view of the narrow nature of Slater's measure of group effectiveness, which was member satisfaction, and in view of the very restricted nature of the participants in the studies, i.e., white male college students.

Thomas and Fink (1963) reviewed 31 empirical studies of small groups in which group size was related to group performance, distribution of participation, nature of interaction, group organization, member performance, conformity, consensus, and satisfaction. Unfortunately, the studies were generally of such poor methodological quality, and used such different samples, procedures, and measures, that the conclusions were trivial:

Many variables were found to be significantly affected by group size, but methodological shortcomings characterizing this group of studies preclude the assertion of broad generalizations. Several dependable and nondependable intervening variables are suggested which may help to account for many of the observed effects. Conclusions are: group size is an important variable which should be taken into account in any theory of group behavior, and future research on group size should proceed more systematically than in the past. (Page 383.)

Or, in idiomatic English: A lot of studies seemed to show that size was related to different kinds of effectiveness, but they were all scientifically mediocre, and better studies are needed.

Steiner (1966) argued that the effects of group size depended on the task. He classified task types in an effort to make predictions about group size and “potential productivity.” He conceived of “actual” productivity as potential productivity minus losses due to poor coordination among members. His classification scheme was at least interesting: additive tasks, in which members’ abilities add together arithmetically, as in a tug of war; disjunctive tasks, in which the entire enterprise depends on the ability of the most able member; conjunctive tasks, which depend on the least able member; and so on. His analysis rested entirely on reviews of previous studies of group size.

Frank and Anderson (1971) performed an empirical test of Steiner’s (1966) notion that the relationship between size and group performance depended on the type of task. Their findings with group sizes of 2, 3, 5, and 8 confirmed the differential effects of size depending on task type, and in the directions predicted by Steiner: increases in group size enhanced performance on disjunctive tasks (where performance depends on the most competent member), and decreased performance on conjunctive tasks (where performance depends on the least competent member). This may have been an obvious and trivial revelation. For a task that depends on the smartest member, larger groups are probabilistically more likely to have one really smart member than smaller groups, so the more the merrier; and vice versa. Nevertheless, later literature referred frequently to this Frank and Anderson study.

Then, in 1970, Blau became interested in the problem, and his influence was strongly felt (Blau, 1970a, 1970b; Blau & Schoenherr, 1971; Blau & Schoenherr, 1973). According to a succinct review of Blau’s contributions by Freeman and Hannan (1975), the central point of Blau and colleagues was that larger organizations were more complex, and more complex organizations had more coordination problems, for which the organizations would hire more administrative personnel. However, this did not result in a higher A-P ratio, because larger organizations already had in place a functional and well-understood administrative system. As Blau (1972) put it:

If the volume of administrative work increases less than proportionately as the volume of operations increases; and if the volume of work governs the number of persons needed to accomplish it, in administration as well as in operations, it follows that the number of persons in administration increases

less than that in operations; and hence that the proportion of administrative personnel decreases as the total number of employees increases. (Page 18.)

In other words, the position taken by Blau and colleagues was that increases in organization size did lead to more administrators, but not proportional to the size increase. “Economies of scale” more than counteracted the administration increases, via efficient differentiation and assignment of administrators to known and well-defined roles.

In the spirit of a footnote, it was during this historical period that the accomplished and respected economist E. F. Schumacher published a book entitled “*Small Is Beautiful: Economics As Though People Mattered.*” He emphasized the importance of human feelings within the economic arena (Schumacher, 1973). This intriguing little treatise became a countercultural resource in rapid order. For those who tended toward distrust of the Western establishment, it was easy to jump aboard the simplistic interpretation of Schumacher’s work and oppose all “bigness”: big government, big industry, big insurance companies, big military-industrial complex, and so on.

However, most interpretations of Schumacher’s insightful writing were overly simplistic. His insights, particularly if we extend into the economics of the human services, were quite deep and compelling. Despite the fact that he was not writing for scholars, his work was founded firmly in an understanding of classical and modern economics, and was also blended with a grasp of individual psychology and humanism. Schumacher saw that all of the literature on size, the A-P ratio, and effectiveness had implicitly accepted the notion that the ultimate and only goal of the organization was effectiveness, however measured. Common sense suggested that this was an incomplete view, and one in which humanitarian values might easily become lost. Schumacher traced his economic training as follows:

I was brought up on an interpretation of history which suggested that in the beginning was the family; then families got together and formed tribes; then a number of tribes formed a nation; then a number of nations formed a “union” or “United States” of this or that; and that, finally, we could look forward to a single World Government. ... Second, I was brought up on the theory that in order to be prosperous a country had to be big - the bigger the better. ... And third, I was brought up on the theory of the “economies of scale” - that with industries and firms, just as with nations, there is an irresistible trend, dictated by modern technology, for units to become ever bigger. ... Even today, we are generally told that gigantic organizations are inescapably necessary; but when we look closely we can notice that as soon as great size has been created there is often a strenuous attempt to attain smallness within bigness. The great achievement of Mr. Sloan of General Motors was to structure this gigantic firm in such a manner that it became, in fact, a federation of fairly reasonably sized firms. (Page 63-64.)

Schumacher's points are still persuasive. Moreover, much of the literature since his book has questioned the old assumptions about economies of scale and the inevitable trend toward huge organizations. He also suggested one thing not seen elsewhere in the literature: the notion that organizations become large for non-rational reasons. Although he did not explicitly state it in anthropological terms, he suggested that the real motivating force behind the creation of vast organizational empires might be, not efficiency or productivity or effectiveness, but simple human territoriality. This drive, which has been clearly documented and studied all the way from insects to humans, aims toward individual "control" of more and more "turf," and "turf" can be spatial or social. Territoriality is a survival trait among species functioning at instinctual levels; whether it is a survival trait for creatures with language and tools and weapons of mass destruction is still an open question.

Schumacher went on to consider human needs on an equal footing with organizational needs. He expressed the opinion that humans needed both freedom, which was strongest in lots of small, autonomous units, and order, which was strongest in larger units with clear rules and predictable actions. In his words:

What I wish to emphasize is the duality of the human requirement when it comes to the question of size: there is no single answer. For his different purposes man needs many different structures, both small ones and large ones. ... Yet people find it most difficult to keep two seemingly opposite necessities of truth in their minds at the same time. ... For constructive work the principal task is always the restoration of some kind of balance. Today, we suffer from an almost universal idolatry of giantism. It is therefore necessary to insist on the virtues of smallness - where this applies. (If there were a prevailing idolatry of smallness, irrespective of subject or purpose, one would have to try and exercise influence in the opposite direction.) ... For every activity there is a certain appropriate scale, and the more active and intimate the activity, the smaller the number of people that can take part, the greater is the number of such relationship arrangements that need to be established. (Page 65-66.)

Schumacher offered the example of teaching. Some kinds of teaching take place only in small intimate interchanges, while other kinds are best done in mass media or in huge crowds. The first question is always, what are we trying to teach? In the best summary paragraph of his book, he says:

What scale is appropriate? It depends on what we are trying to do. The question of scale is extremely crucial today, in political, social, and economic affairs just as in almost everything else. What, for instance, is the appropriate size of a city? And also, one might ask, what is the appropriate size of a country? ... We cannot directly calculate what is right; but we jolly well know what is wrong! We can recognize right and wrong at the extremes, although we cannot normally judge them finely enough to say: "This ought to be five per cent more," or "that ought to be five per cent less." (Page 66-67.)

Schumacher forces us to continually wonder, "What are we trying to do?" as we contemplate the size of goal-oriented groups. It seems sensible that goals and

values should shape the desired forms and sizes of organizations, because different goals would be better served by different types of organizations.

Back in the mainstream of the literature, Snyder (1975) performed an experimental study on whether there was an “optimum group size” to accomplish a task and to be most personally satisfying to its members. He used groups of size 4, 5, 6, 7, 8, and 9. His findings indicated that size did make some difference, but relatively little. He concluded that the notion of an optimum group size was not supported by the analysis, although there was a trend for the group sizes 4 and 5 to be considerably more satisfying than sizes 8 and 9. Snyder’s finding did not fully confirm that of Slater (1958) that group size 5 was ideal, but they did not reject it either.

In addition to reviewing the literature, Freeman and Hannan (1975) explored the often-raised idea that conclusions drawn from cross-sectional data might be systematically different from those arising from longitudinal data. They pointed out that the bulk of literature on administrative intensity was cross-sectional. They suggested that the relationship between size and administrative intensity might be quite different depending on whether the organization was growing or declining. If so, then cross-sectional analyses would obscure that fact. They developed a conceptual and mathematical model, and tested it with California school districts data, in the tradition established by Terrien and Mills (1955). Their analyses of the data suggested that they were right, and also that the A-P ratios were too complex to be useful in many analyses. They believed that cross-sectional analyses of organizational demography would often be quite misleading.

Freeman and Hannan’s major conclusion could be stated as: when an organization is growing, the administrative component is always trying to “catch up” and is disproportionately “lean,” but when the organization is declining, the administrative employees tend to be able to hold onto their jobs beyond their usefulness, making the organization look “fat” during decline.

In 1980, Dalton and colleagues published a review of the literature regarding organizational structure and performance (Dalton, Todor, Spendolini, Fielding, & Porter, 1980). The abstract of their article was rather strongly worded:

Reviewing the research literature available on the relationship between structure and performance in an organization reveals a deficiency of sound research in all areas essential for serious study. Too little research and the inconclusiveness of studies that have been done both demand further research in the area. Distinctions are made between hard and soft performance criteria, the structuring and structural dimensions of structure, and subgroup and organization units of analysis.

Specifically, Dalton et al. reported that most investigators had failed to find a significant size – performance relationship at the organizational level. At the subunit level, they concluded that the majority of studies found that smaller groups were associated with better performance, across a variety of measures; however, a minority found better performance in larger subunit groups.

Despite their failure to substantiate any unambiguous relationship between size and performance, the Dalton et al. analysis was at least useful to the next generation of analysts, in that they suggested that level of analysis might be a very important source of confusion across studies. This led to the notion that one should distinguish studies of organizational size from studies of the size of subunits within an organization.

Until the 1980s, the study of size and effectiveness in the organizational research literature was somewhat chaotic, and very difficult to interpret. In 1985, Gooding and Wagner reviewed the relationship between size and performance of organizations and their subunits. Gooding and Wagner screened nearly 200 published studies, and selected 31 that met consistent methodological criteria. From these 31 studies, they attempted to find an interpretable pattern. The remainder of this section is a review of their conclusions.

Gooding and Wagner noted that three kinds of scientists had been at work on the question:

1. Industrial-organizational economists had approached it through examination of organizational economies of scale. Most often, these analysts were searching for the size of organization or unit that would optimize the cost per unit of production. Findings in the literature were inconsistent.
2. Many, but not all, organizational theorists also approached the problem with an inherent belief that organization size would be associated with significant economies of scale. Others emphasized the ability of larger organizations to exert more control over the sources of resources. This and related perspectives predicted that larger organizations would produce more, but not necessarily more per worker.
3. Social psychologists approached the problem largely from the group, rather than organizational, level, and often reported an insignificant relationship between group size and indices of effectiveness, but sometimes reported decreasing effectiveness with increasing size. These analysts frequently hypothesized “free riding” as the culprit (in which group members, relatively anonymous in larger groups, could slack off with no one noticing), and also higher coordination costs with larger groups.

These three kinds of scientists had been approaching with different definitions and measurement techniques. Gooding and Wagner suggested that the reason the literature was confusing and often contradictory was that different kinds of scientists had been defining and measuring things differently. Gooding and Wagner specified three dimensions which had varied across studies:

1. The **LEVEL OF ANALYSIS**. Some studies had examined entire organizations, while others had analyzed subunits within large organizations.
2. The **PERFORMANCE MEASURE**. Some studies had used key informant ranking, others used organizational records, and others used physical output. Most importantly, some had used absolute output and others had used relative output (i.e., output per unit of size), potentially a very important difference.
3. The **SIZE MEASURE**. Some investigators had operationalized the size variable as the number of employees, others as the number of beds in a hospital or like facility, others as financial assets, and other as the magnitude of output transactions such as sales or number of clients served.

Gooding and Wagner concluded that these three variations could explain a major proportion of the differences across the studies. Employing a form of meta-analysis, as improved by Hunter, Schmidt, and Jackson (1982), Gooding and Wagner categorized each of the 31 studies according to the level of analysis, the performance measure, and the size measure. Their conclusions were clear:

1. Studies that used the organizational **LEVEL OF ANALYSIS** found that larger organizations were more productive in absolute terms, but not in ratio terms. That is, larger organizations produced more units, but did not produce more per worker. Gooding and Wagner concluded that there was actually no evidence for economies of scale in terms of worker efficiency. This finding was consistent across a variety of **SIZE MEASURES**.
2. Studies that used the subunit **LEVEL OF ANALYSIS** showed a negative relationship between size and productivity, both for absolute and relative measures of performance. This also held true across studies using a variety of **SIZE MEASURES**.

The group home size question is at the subunit **LEVEL OF ANALYSIS**. The typical situation is that a private service provider corporation operates several group homes. Thus each group home is a subunit of the larger organization. The group home **PERFORMANCE MEASURES** are related to the quality of life of the individuals in the group homes, and are therefore best thought of as efficiency measures. For example, growth in adaptive behavior/independent functioning per unit of staff time or per dollar would be useful measures of performance. The **SIZE MEASURE** in the group home situation is simple: the number of people living in the home.

According to Gooding and Wagner's meta-analysis, then, we should expect to find smaller group homes producing more positive outcomes.

The organizational literature reviewed here includes more than 100 pieces of primary research. From them, no clear consistent pattern of the organization size and effectiveness relationship emerged, until the meta-analysis of Gooding and Wagner (1985). They showed that prior studies had varied in their levels of analysis (organization or subunit), their performance measures (absolute or relative), and their size measures.

When these were examined via meta-analysis, a clear pattern did emerge. This pattern called the entire notion of Economy of Scale into serious question. Whether approached from the perspective of the organization or the subunit, when confounding variables were controlled, larger organizations and larger subunits did not produce more per worker.

At the same time that Gooding & Wagner's brilliant meta-analysis called the traditional Economy of Scale assumptions into very serious question, Schumacher's "*Small Is Beautiful: Economics as Though People Mattered*" made a compelling case for consideration of outcomes other than economic. Our concern in the human services is precisely suited to this refreshing new perspective – and it came along at the same time that even the most rigorous scientists were questioning whether larger plants really produced more widgets per person per hour. Perhaps our assumptions about size and Economy of Scale, so easily imported from industry into the human services, were dangerously misleading.²⁷

The organizational goals of group homes for people with intellectual disabilities are fundamentally human, not financial. They are primarily concerned with the quality of life experienced by the people who live in them.²⁸ Quality is multi-dimensional; it has dozens of aspects. Among them are developmental progress toward increased independence and socially appropriate behavior, integration, relationships, opportunities for choicemaking, satisfaction, individualization, services and supports intensity, attainment of individual goals,

²⁷ Such mistakes have been made before. One of the worst in history was the importation of biological models into the social realm. The emergence of Social Darwinism in the late 19th century could be argued to have done as much harm as any of the pernicious ideas that have arisen in the modern world. It led to justification of the abandonment, segregation, isolation, underfunding, and forgetting of people with disabilities, both here and abroad – not to mention the rise of the Eugenics Movement, which fostered sterilization and lent support to the National Socialist movement of Germany.

²⁸ And the direct support people who work in them – good research must take both into account as a synergistic and mutually reinforcing system.

normalization, health, safety, and physical comfort. Hence indicators of each of these organizational goals must be explored. If the analyses are done properly, the quality and outcome indicators are likely to turn up to be strongly related to size, if the literature from organizational and industrial psychology is any guide.

Appendix C: Educational Literature on Group Size (Class Size)

Literature Review on Group Size in Education - i.e., Classroom Size²⁹

An issue that may be closely related to the effectiveness and quality of congregate living (group homes) is the effectiveness of instruction in groups of various sizes. Most studies concerned student achievement (academic outcomes, or simply learning). As we will see, however, it is also important to consider other things – such as which situations produce other important things like student happiness, satisfaction, and morale.

Just on the topic of academic achievement, illustrating the degree of conflict in 100 years of study of this issue, Slavin (1989) wrote:

The search for substantial achievement effects of reducing class size is one of the oldest and most frustrating for educational researchers. The search is approaching the end of its first century; eventually, it may rival the search for the Holy Grail in both duration and lack of results. (Page 99.)

The situation had been substantially improved by application of the method called “meta-analysis,” which means rigorously pooling the findings from a lot of studies, weighting them by how well they were designed, and coming up with the best summary of all of them put together. Glass and Smith (1978) produced the first such analysis. They performed a meta-analysis on the outcomes of 77 studies that included 725 comparisons of student achievement between smaller and larger class sizes. (Glass was, in fact, in the process of creating the concept of meta-analysis while working on the class size literature.) In sharp contrast to past narrative reviews, which had seen the literature as internally inconsistent and inconclusive, Glass and Smith’s meta-analysis came to the relatively clear conclusion that smaller classes were associated with superior achievement outcomes.

Cooper (1989) suggested caution, coupled with a firm conviction that the weight of the evidence was on the side of smaller classes:

Reviewers of the class size literature disagreed over whether a reduction in instructional group size has its intended effect ... However, some consensus did emerge ... Reduced class size appeared to be most efficacious with low-ability or disadvantaged students when reductions were in the range typically associated with Chapter 1 programs. Such reductions may not only lead to higher achievement but to better student and teacher attitudes and morale and to an enrichment of the core curriculum. (Page 98.)

²⁹ Adapted and extended from Conroy, J. (1992). *Size and Quality in Residential Programs for People with Developmental Disabilities*. A Dissertation Submitted to the Temple University Graduate Board in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy. Philadelphia: Temple University.

Slavin (1989) was skeptical, and did the entire meta-analysis over again, calling his new approach “best-evidence synthesis.” Using exactly the same studies as Glass and Smith, and even their own tables, Slavin showed that the average effect of the smaller class size on achievement was no more than about 13% of a standard deviation. In statistical terms, that is a very small effect.

Equally interesting, multiyear studies showed that initial gains faded after a year or two, suggesting that smaller class sizes might have, not only small benefits, but temporary benefits as well. The studies in his analysis reduced class sizes from an average of 27 to 16 students. Yet the effects were very small indeed. In trying to explain why this might be so, Slavin’s strongest suggestion was that “*teachers’ behaviors do not vary very much with size of classes.*” The implication was that behaviors might change slightly, but in the size range of real world classrooms, teachers really did not markedly change how they taught students whether they had 16 or 27 in their class.

Most importantly for our current concerns about residential homes, Slavin also showed that the major educational effects, even in Glass and Smith’s own tables, occurred in the very small “classes” of size 1 to 3. From that, Slavin inferred that class size was the wrong focus for those concerned with national policy. For students such as those served by educational programs aimed at children in poverty, what would be most beneficial was not smaller classrooms, but individual or extremely small group tutoring. This may be a key finding for the search for quality in residential settings for people with intellectual & developmental disabilities: we need to aim above all for situations that support frequent one to one interactions.

But academic achievement, while it is the primary purpose of schools, is not everything. Slavin made a major concession when he mentioned factors other than achievement:

Of course, it is important to note that reductions in class size do seem to have significant effects on other variables, such as teacher and student morale (Glass et al., 1982). Reducing class size may be justified on morale and other quality-of-life grounds. However, as a means of increasing student achievement, even substantial reductions in class size have little apparent impact.

It is most intriguing that Slavin, who so strongly believes that the achievement claims are nonsense, is willing to consider the notion that smaller class sizes produce other kinds of significant benefits. basically, even he admits that the evidence is fairly clear that people like smaller classes better. They are

happier in them. The quality of life may be superior in smaller classes. This may be an important clue for the present effort, which is concerned with quality of life as much as behavioral outcomes.

Moreover, Slavin agrees that the evidence supports a notion that size may become very important when class size drops to three or fewer, a conclusion that may be highly related to group home models. Pennsylvania limited group home size to three people for more than 20 years, but then began to approve larger ones – with quality impacts that have been widely suspected, but not studied with rigor.³⁰

In summary, the classroom size literature achieves consensus about only four findings: (1) smaller classes are usually found to be related to slightly better student achievement, but mostly in the lower grades; (2) smaller classes are consistently found to be “better” in terms of indicators of quality other than student achievement such as satisfaction and morale; (3) large differences in achievement and qualities of schooling are not found until size drops below 10; and (4) dramatic improvements in student achievement are only found in the extremely small “tutoring” situations in which a single teacher is alone with just one or a very few students.

This fourth finding parallels a conclusion from the intellectual disabilities literature, that the best results come from situations in which single support workers are alone with a very small number of people.

³⁰ Personal communication with leaders of three provider agencies, 2007.