

Dunbar's Number goes to Church:
The Social Brain Hypothesis as a Third Strand in the Study of Church Growth

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Abstract

The study of church growth has historically been divided into two strands of research: The Church Growth Movement and the Social Science approach. This article argues that Dunbar's Social Brain Hypothesis represents a legitimate and fruitful third strand in the study of church growth, sharing features of both previous strands but identical with neither. We argue that five predictions derived from the Social Brain Hypothesis are accurately borne out in the empirical and practical church growth literature: that larger congregations lead to lower active engagement from members; that single-leader congregations are limited to around 150 members; that congregations of 150 are further stratified into smaller functioning groups; that congregations expanding beyond 150 members undergo internal tensions and are forced to reorganise; and that congregations larger than 150 will require structural sub-divisions to retain active member involvement. While these assertions are reflected in the church growth literature and articulate the common sense assumptions of church growth experts, the Social Brain Hypothesis offers a coherent theoretical framework which unifies these observations and thereby represents a distinctive contribution to church growth studies.

Key words: Social Brain Hypothesis, Dunbar's Number, Church Growth, Congregation Size, Christianity

Short title: The Social Brain Hypothesis and Church Growth

A Third Strand in Church Growth Studies

Church Growth has been defined as the subject area which ‘seeks to analyse why Christian churches, at various levels of organisation, grow or decline’ using numerical growth as ‘a vital area of analysis’ (Hayward, 1999, p255). The church growth literature is commonly viewed as divided into two major strands: ‘the Church Growth Movement, which is based within the denominations and seminaries of the Christian church to serve their needs; and the Social Science strand whose focus is academic research’ (Hayward, 1999, p.256).

Both strands of scholarship propose hypotheses about what leads churches to grow or decline. The origins of the first strand, the Church Growth Movement, are often attributed to the pioneering work of Donald McGavran, based at Fuller Theological Seminary in the late 1950s, which an extensive literature largely directed at helping church congregations to be effective in mission and achieve growth (e.g. Dale, 2004; McIntosh, 2009; Martin, 2005; Schaller, 1993; Sullivan 1988). The second strand, the Social Scientific Study of church growth, finds its conception in the response to Dean Kelley’s 1972 book, *Why Conservative Churches are Growing*, (see Kelley, 1978) which provoked ongoing academic interest in the factors that influence church growth or decline (e.g., Bibby, 1978; Iannacone, 1994; Finke & Stark, 2001; Barros & Garoupa, 2002). Hayward (2005), summarises these two strands of literature by suggesting that theories of ‘church growth tend to concentrate either on *factors in society* that enhance or inhibit growth, or *factors within the churches themselves*’ (p.178 *emphasis added*).

In this article we argue for a distinctive third strand in the study of church growth. One which shares features in common with both the Church Growth Movement and Social Science, but cannot ultimately be identified with either. We assert that a fruitful and novel approach to

understanding church growth at the congregational level can be derived from evolutionary theory, specifically the predictions of human group size derived from Dunbar's (1993) Social Brain Hypothesis (SBH).

With regard to the Social Scientific strand of the church growth literature, the SBH shares a reliance on empirical data, by drawing on mathematical models to account for group size. But whereas social scientists have tended to prefer predictions based on epidemiological and economic models (e.g. Haywood, 2005), the SBH draws its predictions from computations of human brain size. In this respect it parts company with the Social Science approaches which prioritise wider societal factors to explain growth and decline in religious groups. Yet in doing so, the SBH responds to the repeated call in social science of religion, to return to the congregation as a legitimate level of analysis (Pinto and Crow, 1982). It addresses the concern that social science 'theorists have taken the wrong path by focussing on the size of the whole religious body' and aligns with an approach 'which focusses on the small size of congregations... [as] a more fruitful line of analysis for organisational structure and change' (Pinto & Crow, 1982, p. 315).

When it comes to the Church Growth Movement, on the other hand, the SBH shares the tendency to explain the factors that govern congregation size in terms that do justice to the experience of those who belong to the social groups under investigation. It predicts limits and tensions in groups of certain sizes that should be recognisable to leaders and members of church congregations. However, it does so by drawing upon a broader evolutionary theory which may not always be welcome. Commentators in the church growth movement, while largely welcoming the applications of the SBH are not unanimously fond of the evolutionary theory it presupposes. By way of illustration, Murray (2012), applies the findings of the SBH to church

size with approval, but is less impressed by the ‘evolutionary mumbo-jumbo in the rest of [the] article’ (Murray, 2012, para. 5). In this sense the SBH can evoke the kind of suspicion from congregation members usually reserved for the economic models associated with social scientific models of church growth.

Our contention therefore is that the SBH makes a unique and distinctive contribution to the church growth literature in providing a theoretical framework acceptable to Social Scientists which anticipates, predicts and explains many of the findings and assertions of the Church Growth Movement. In this regard we propose the following five predictions concerning congregational size, derived from the Social Brain Hypothesis, that:

- a) size of church congregation is negatively associated with the active involvement of its members, i.e. the larger a congregation becomes the lower active member engagement becomes; that
- b) congregations led by a single individual will be limited to a weekly attendance of around 150 people; that
- c) congregational or religious groups of 150 will be further stratified into subgroups of approximately 5, 15 and 50; and that
- d) congregations which grow, or seek to grow, beyond 150 people will by necessity undergo significant structural re-organisation with associated community tensions; that
- e) congregations of over 150, particularly those of 500 and 1500 members, will require structural subdivisions to retain the active involvement of their membership.

We address each of these predictions in turn, by explaining how they are derived from the Social Brain Hypothesis and examining how they hold up in the face of the empirical and

anecdotal literature pertaining to congregation size. In the process we aim to establish the Social Brain Hypothesis as an extraordinarily useful framework for unifying the largely atheoretical congregational growth literature.

Larger Churches Lead to Lower Engagement

The first prediction is a general and intuitive claim that larger church congregations inevitably encounter a challenge in actively engaging all their members. It is an underlying principle of the Social Brain Hypothesis that the size of human social groups is limited by the capacity of the human brain. The SBH originated as an explanation for the fact that primate brains are significantly larger, absolutely and relative to body size, than those of any other group of animals. The central claim is that living in large, complex, bonded social groups requires a larger computer (i.e. brain) to manage the relationships involved, particularly where these involve not just dyadic relationships (A's relationship with B) but also triadic and even more complex relationships (i.e. the effect that B's relationship with C has on A's relationship with B). Primates live in relatively large, stable, bonded groups in which individual members have lifelong relationships with each other that provide the glue to hold these groups together through time. By extension this implies that as social groups such as church congregations become larger, they eventually outstrip our capacity to identify and engage meaningfully with them.

A significant body of literature has addressed the impact of congregation size on the engagement of its members. Over half a century ago Wicker (1969) noted the general principle that member to activity ratio increases with church size. Drawing from archival data on 104 churches, he noted 'a negative relationship between church size and several indexes of support

for church activities' (Wicker, 1969, p. 278). In comparing members of a small church (338 members) with those of a large church (1599 members) he finds that members of the small church, 'participated in more different kinds of activities, had more leadership positions and spent more time in the activities, attended church more often, and contributed more money' (Wicker, 1969, p.278). He interprets this finding in terms of behaviour setting theory and bystander effect:

When people are sparse, members sense that the fate of the setting depends upon them; responsibility cannot be easily shifted to others. But when people are plentiful, demands on the average member are less; other people are available to carry on the setting's activities, so felt responsibility and actual support for behavior settings are not so great. (Wicker, 1969, p. 286).

However, the size of church, not only affected participation in church life, it also predicted the extent to which new members were assimilated or felt that they belonged to the congregation (Wicker & Mehler, 1971). A similar effect of size on belonging was reported by Cheung et al. (2015) who, drawing data from a Chinese population, found that 'larger churches are more effective than smaller ones in preserving the "vertical" aspect of faith maturity... [but] less effective in fostering a sense of bonding among attendees' (p. 63). Others have noted the role of 'member fit' as a driver of satisfaction and thereby retention in church congregations (Silverman et al., 1983), potentially reflecting the extent to which a given congregation can adapt to the psychological preferences of attendees (Francis & Robbins, 2012).

The same dilemma faced by larger churches has also been framed in economic terms as a free-rider problem (Stonebraker, 1993). Analysis of data from over 300 Lutheran congregations,

with the largest representing over 800 members, confirms that larger churches with greater income become increasingly mission-focussed, generating ‘disproportionate amounts of the benevolence dollars used to finance outside ministries’ (Stonebraker, 199, p.239), rather than directing this increased income to internal ministry to their members. The increasing external focus of larger churches means that a significantly lower proportion of church income is directed to supporting members of the congregation. The SBH therefore predicts the general principle that as a congregation increases in size the glue that holds its members together as a natural single unit weakens- a widely acknowledged phenomenon in church growth studies for which larger churches develop compensatory strategies designed to retain member engagement, as we will examine below.

150 Members as a Congregational Limit

The general prediction of decreasing member involvement as group size increases can be explained, and indeed has been explained, from various competing theoretical perspectives (e.g. the by-stander effect, ecological psychology, person-setting fit, and so forth) among which the SBH is only one contender. The additional relevance of the Social Brain Hypothesis to the church growth literature however is that it makes a very *specific* prediction about the natural size of human social groups. This prediction arises from the fact that social group size correlates with neocortex volume across the primates, the neocortex being the part of the brain that has evolved out of all proportion during the course of primate evolution. In modern humans, the neocortex represents around 80% of total brain volume, and is responsible for all our substantive cognitive abilities, conscious and unconscious.

Mapping the size of the human neocortex onto the relationship between group size and neocortex size in primates yields a predicted group size for humans of around 150 individuals (Dunbar 1993). This number appears in a wide range of contexts, including personal social networks measured through face-to-face contacts, in phone call datasets and in online social media (Hill & Dunbar 2003; Roberts et al. 2009; MacCarron et al. 2016; Dunbar et al. 2015; Dunbar 2016), the size of English villages during the pre-modern period (Hill 1981; Laslett 1971), and the size of hunter-gatherer communities (Dunbar 1993; Hamilton et al. 2007). This circle of “friends” includes both extended family as well as conventional friends. What this grouping size seems to point to is a set of people, such as a church congregation, who have feelings of obligation, trust and reciprocity towards each other.

This aspect of the Social Brain Hypothesis finds some support in church census figures from the United Kingdom, which point towards a maximum congregation size of 150 for churches with a single leader. Data collated from the Church of England, Free Churches, Orthodox and Roman Catholic Churches, suggested that in 1998, just under 85% of English churches reported an average Sunday congregation of under 200 (Brierley, 2000). By 2010, 89% of congregations in these denominations reported a weekly attendance of under 200, and over 50% of all the congregations reported weekly attendance of less than 50 people (Brierley, 2014). Comparable figures are reported in smaller scale studies, such as that by The Centre for Theology and Community, of growing Anglo-Catholic Churches in London most of which report a membership of between 50 and 150 (Thorlby, 2017).

Reflecting on comparable trends, Jackson (2002, *cited in* Lings 2016a) indicated that 120 people, or a congregation of 100-150 adults, is the maximum number to which a single clergy can be expected to relate, and further observes that congregations of over 150 are those most

likely to be in decline. Similar evidence of congregational limit is found in the Church Commissioners work examining over four thousand parishes, which calculated that in parishes of over two thousand people, church attendance per full time equivalent clergy ranged from 134 to 151 (*see* Lings 2016a).

It is therefore no surprise that a small number of commentators on church growth have welcomed the insights to be gleaned from the SBH. In the guise of ‘Dunbar’s Number’ as a group of 150 people, it has penetrated the consciousness of theological commentators and ministry experts. Several commentators have drawn on the SBH as an explanation for the limitations of church growth they have observed. Jones (2010) draws on the finding that 75% of churches in the United States number 149 people or less (McIntosh, 1999), concluding that, ‘Dunbar’s number is innate... and that is why churches flock together around this number. It’s not that small churches want to remain small, it’s just wired into us’ (Jones, 2010, para 8). Morgan (2017) summarises the implications of Dunbar’s number in a church context as ‘after 150 people, we have almost nothing left to give’ (para. 3), and makes the recommendation that churches deploy ‘one full-time staff equivalent for every 150 people in a ministry environment’ (Morgan 2017, para. 12; *see* Morgan & Stigile, 2016). Likewise, David Thorne observes from the SBH that the church planter who begins ‘with the goal of having 162 people attend on opening Sunday... should immediately know that number is slightly beyond the number of relationships he/she can hold by themselves’ (Thorne, 2018, para. 8), and advises them to be ready to imminently reproduce their congregation.

By the same token, missiologist, Howard Snyder (2017) acknowledges that Dunbar’s Number checks generally with his experience of congregations. ‘The most vital congregations I have experienced,’ he writes, ‘ranged in size between about 70 and 200. Perhaps 150 is a good

average' (Snyder, 2017, para. 15). Furthermore, he anticipates the predicted transition required of congregations above that figure, suggesting that '125 to 175 is a good healthy number, and 150–200 generally provides a good basis for spinning off daughter or sister congregations' (Snyder 2017, para. 23). In similar fashion Murray (2012), draws on the SBH to indicate that 150 members may be the 'magic number' for church size, provoking extensive disagreement from Brister (2012) who intoned that if 'the quality of your relationships is determined by the size of your church, then the way you view church needs to change' (Brister, 2012, para. 10). A point which, far from invalidating the SBH, precisely represents what the hypothesis predicts: social groups which grow beyond 150 people will require reconfiguration to retain their sense of coherence.

But perhaps the most compelling evidence for the self-limiting size of churches as human communities, comes from the work of David Wasdell, presented to the General Synod of the Church of England in 1974. Wasdell's large scale survey work, covering 43 Dioceses in the provinces of Canterbury and York has largely been forgotten, and the recommendations therein have never been applied in practice (Lings, 2016a). His basic observation taken from parishes with populations of more than two thousand people was that 'the single-clergy model church levels off at an average congregation of 175 regardless of parish population' (Wasdell, 1974, p.6). He referred to this as 'the *fact* of the self-limiting church' (Wasdell, 1974, p.9 emphasis in original), and equated this with biological growth limitations:

Just as a cabbage, a tomato, a swarm of bees or a human being has an optimum size, so does a congregation. Individual cabbages may vary in size within certain limits. Those limits may be affected by the amount of fertiliser in the soil, the kind of cabbage, the amount of attention it gets, rainfall, sunlight and a host of other parameters - but limited

the cabbage is. It doesn't just grow and grow. No matter how big the field in which the cabbage is planted, it doesn't change the limit to its size (Wasdell, 1975 p. 5).

Utilising marketing terminology, he noted that the congregational penetration of a parish (i.e. the number of people in the parish who participated in the congregation), dropped precipitously as the parish population rose. In parishes of under 125, the church achieved a penetration of over 20% of the population, falling to 10% in parishes of 1500, in parishes of 10,000 people, 'only 2.3% are involved in the congregation, while the figure declines to 1.6% for parishes in excess of 20,000' (Wasdell, 1974, p.7). Accounting for average growth and decline factors, he offered a worked example of a congregation of 200, in which the mean expected annual loss due to death, debility and departure is 20 members (10%) and the mean expected annual gain through clergy and laity recruitment is 17.5 new members per year, resulting in an overall annual loss of 2.5 members. While acknowledging that this was a crude application of dynamic analysis, he concluded that the membership of such a congregation would stabilise 'at around 150, a little lower than the national average for a single clergy congregation' (Wasdell, 1974, p. 13).

In recent years, Lings (2016a, 2017) has recovered the work of Wasdell. Looking at the current shape of parish penetration for congregations, he notes the same trend. Forty years later, Wasdell's data 'is not outdated, it has simply been updated' (Lings, 2017, p. 1), acknowledging that attendance figures in all parish sizes are largely 40-50% down on the 1974 figures. Overall these sources suggest that human communities expanding too far beyond 150 members encounter inevitable resistance. The SBH would attribute this resistance ultimately to the upper-limit of the human brain's capacity to relate to a group of people larger than this.

Sub-Group Stratification

It is, however, important to appreciate that, according to the Social Brain Hypothesis, our relationships with the members of this set of 150 are not homogenous. In fact, it consists of a series of layers that are strikingly differentiated by relationship quality. These layers have very distinct sizes and a very distinct scaling relationship with each other: counting cumulatively so that each layer includes the members in the layers inside it, they have values at around 5, 15, 50 and 150, with a scaling ratio of around three (each layer is roughly three times the size of the layer immediately inside it) (Hill & Dunbar 2003; Zhou et al. 2005; Sutcliffe et al. 2012; Dunbar 2015; MacCarron et al. 2016). With each successive layer, both the quality of the relationship and the frequency of contact decline, as does the willingness to act altruistically. In terms of our everyday relationships, we might think of the successive layers as being equivalent to our close friends, best friends, good friends and “just” friends. The inner two layers have also been labelled as the support clique (the 5-layer) and the sympathy group (the 15-layer). The support clique is that set of individuals from whom one would seek (and expect to be given) moral, emotional, social and financial support in moments of deep crisis. The sympathy group has been defined as the set of people whose death tomorrow would seriously upset us. Aside from being defined by a specific psychological quality, these layers are also defined by very specific frequencies of interaction: seeing someone at least once a week, at least once a month, at least once every six months and at least once a year, respectively. In fact, the quality of the relationship seems to be dependent on the frequency of contact as much as anything else (Sutcliffe et al. 2012). We would therefore expect to find a similar differentiation of relationship groups reflected in the church growth literature.

It is worth noting that many of the approaches to church organisation over the last half century have grounded organisational strategies in scriptural passages referring to the organisation of large bodies of people. Theologians and commentators in the church growth movement have drawn upon numbers reported in the Bible as a guide to congregational structure. Of the many examples, Beckham refers to what he calls the *Jesus Continuum* (Beckham, 1995, p.151), which is illustrative of the occurrence of human group numbers approximating those predicted by the SBH in both ancient texts and contemporary congregational structures.

In different guises, this is a frequently referenced concept among church growth commentators. Crosby (2015) for example, calls it the ‘Circles of Christ’. The structural principle is derived from the numerical statements in the Gospels and the Acts of the Apostles, suggesting that Jesus organised his disciples (the first church) in concentric circles of relationship. The circles of influence start with Christ at the centre, relating principally to John (‘the disciple he loved’), then to the three (Peter, James and John), then to the twelve, then to the seventy/seventy-two, then to the 120 in the upper room at Pentecost. Beckham summarises these relational rings around Jesus in the gospel narratives as an incremental growth strategy, in which:

Two to three innovators begin the process. A Leadership Core of 12 is gathered. The support network of 70 followers sets the Prototype. A base congregation of at least 120 adults births multiplication (1995, p.204).

Taking his lead from the Pentecost account, Beckham argues that a ‘base congregation of 120-200 *upper room* Christians is the essential infrastructure to be a church of a thousand or tens of thousands. No other structure is required’ (p.201, original emphasis). He is not alone in endorsing the merits of a group of roughly 120 for a church congregation. Several theologians

have even gone so far as to claim that the hundred and twenty present in the upper room represent the ideal congregation size, such as Gerhard Lohfink (1999), who argues:

‘[A] community should not contain more than 120 people. Only at that size can it remain a concrete assembly in which no one is invisible, in which each member can be aware of the sorrows and happiness, the cares and the joys of the others... The figure of 120 is the upper limit if a community is not to become an anonymous cultic society but remain a community of common life...’ (p. 221-222).

Certainly the SBH would suggest that a community of 120 is approaching the upper limit. Small enough to allow for the addition of a few more members, but perhaps not to expand to thousands without any other structures, as Beckham claims. He derives what he calls the Cell Church Structure or the ‘Jethro Structure’ from an episode in the Hebrew bible, in which the burden of leadership on Moses is alleviated by the division of the people into thousands, hundreds, fifties and tens, with the appointment of chiefs responsible for each level (Exodus 18:13-27). Curiously this breaking down of large numbers of people into smaller similarly sized groups is reprised in the New Testament where, in the gospel of Mark, the miraculous feeding of the multitude is preceded by the organisation of the crowd into groups of hundreds and fifties (Mark 6:40). While these numbers do not map precisely into the sequence presented by the SBH, they do nevertheless chime in with the prediction of the SBH that larger human communities consist of smaller more intimate networks of relationship.

Beckham’s anecdotal claim that these group sizes are still effective organisation principles in contemporary congregational life finds support in empirical research indicating that subgroups of the church contain layers of relationship within the parameters predicted by the SBH. Kabiri

(2014), in a study of 154 youth pastors, reported that exceeding Dunbar's number negatively predicted 'the effectiveness of the ministry in regards to growth over time' (p.42). She suggested that 'an active network of over 150 people hindered group growth'. It is also of interest that the youth pastors in this sample reported inflation within the inner circles of their social network, when compared to the figures predicted by SBT. Whereas Dunbar & Hill (2003) suggest average group sizes of 5, 15, 50, and 150 for these rings of relationship, for the youth pastors in this sample, 'the support group had an average of 9 people, the sympathy group had an average of 25 people, and the close group had an average of 87 people' (p.43), potentially reflecting the community expectation for youth pastors to form many close relationships.

This inflation in the size of social circles however could equally reflect the bias towards recruiting people high in extraversion for youth pastor roles who consequently report larger social circles, but not necessarily closer relationships (Pollet, Roberts & Dunbar, 2011). This would be consistent with the indications in this sample that higher numbers of ministry, organizational relationships and demands predicted increased Compassion Fatigue and Secondary Traumatic Stress in some of the participants. Kabiri consequently cautions youth pastors against, 'the pull to perform and maintain a large network so that they can buffer against the potential for greater amounts of stress and factors that lead to burnout' (2014, p.45). This study indicates that, with some adjustment for cultural expectations and personality factors, many of the social dynamics predicted by the SBH, hold true even in subgroups belonging to a larger church body.

Transitions in Group Size

The Social Brain Hypothesis also predicts the structural reorganisation and community tensions that congregations growing beyond 150 people are likely to experience. Dunbar & Sosis (2018) analysed the sizes of historical millenarian communities in the USA, and found that the size at foundation that maximised duration was 50 for secular communes and 150 for religious communes. This former number, indicating secular communities stabilising at fifty members, has been replicated in figures from new church plant congregations. Lings (2016b) conducted a review of 1109 examples of fresh expressions of church (fxC), started between 1992 and 2014, noting that there are multiple forms of fxC, with most being relatively small in size- around 35-55 people. Of the eleven hundred fxC studied, 28% continue to grow numerically, 17% are in decline and/or have died (11%.) Of interest for SBT are the 55% of fxC which maintain the growth gained. Lings speculates that these groups could be categorised as a plateau in growth, and queries the role of a natural size range for such groups (Lings, 2016b).

Furthermore, Dunbar and Sosis (2018) examined what happens when communities exceed this numerical limitation. Their analysis of Hutterite community fissions during the twentieth century also suggested that the communities were trying to keep their size to around 150. Mean size at fission for 100 fissions was 166.5. Daughter communities with foundation sizes of about 50 and 150 seemed to last longer without having to fission again than daughter communities with intermediate values. We do not know why these particular numbers are more stable than other values, but it probably reflects the community's ability to manage relationships among individuals and deal with disagreements on a face-to-face level. Relationships in communities larger than 150 no longer involve the personal qualities that create the sense of obligation and intimacy that allow disagreements to be settled by compromise.

There is a considerable swathe of literature in the church growth movement referring to the numerical plateaus or barriers that growing congregations encounter (e.g. Beaumont, 2011; Dale, 2004; Fletcher, 2009; Gaede, 2001; McIntosh, 2009; Schaller, 1993). Just as the Hutterite communities referenced above attempted to retain an optimal size of 150, a similar phenomenon is noted by church growth experts who explicitly reference the *200 Barrier* and the strategies required to overcome the internal pressure communities experience to remain (e.g. Martin, 2005; Sullivan 1988). This transition zone between churches of different sizes is referred to by Mann (1998) as *the plateau zone*, ‘a band in which attendance wobbles around until there is a definite move to the next size (up or down)’ (p. 16). The plateau zones to some extent correspond to Rothauge’s (1982) categories of church size. The first plateau zone occurs with a weekly attendance of between 50 and 70 people, the second with an attendance of 150-200, the third at 350-400 and the fourth at 800-1000. These transition periods are often marked by significant disquiet in the congregations that go through them, as Mann (1998) phrases it:

Once a church has entered the plateau zone, the strength and appeal of the previous size are already compromised, while the virtues of the next size are not yet in place. Leaders find themselves in a lose-lose position because two competing sets of expectations are laid upon them. Confusion, anxiety, and indecision often result (p. 29).

It is the numerical thresholds of 50 and 150, Mann (2001) asserts, that are most relevant to the vast majority of churches. Of particular interest for the SBH is what she refers to as the Pastoral-to-Program Plateau Zone, which can occur anywhere between 150 and 250, and is accompanied by congregations, ‘being quite unsettled about which size they really want to be’ (Mann, 2001, p.11). She illustrates the concept by reporting the average weekly attendance of a congregation

over four decades, which after a boom attendance of 250-300 people in the late 1960s, largely hovers around the 150 mark throughout the ensuing decades.

The 200 Barrier has also been referred to as ‘the point at which a second pastoral staff member must be added’ to keep the congregation viable (Keller, 2006, p. 2). The church of under two hundred people, according to Keller (2006), works on the assumption that ‘every member must have a face-to-face relationship with every other member’ (p. 7). Consequently, Mann notes the occurrence of an oscillation between centralised and diffused leadership as the group transitions between different sizes. In moving from Family Size (<50) to Pastoral Size (50-150), she observes, the congregation typically becomes ‘pastor-centred’, as the group establishes two or three networks with the pastor as ‘a symbolic centre around which those networks can orient themselves’ (Mann, 2001 p.14). Conversely, the transition from Pastoral Size to Program Size (150-350), is characterised by a swinging of the pendulum back to a team mentality, ‘as the pastor can no longer carry around the whole system in his or her head’ (Mann, 2001 p. 14).

Similarly, George and Bird (2017) view the *200 Barrier* is the point at which the ability of the single church leader to meet the needs of the congregation reaches capacity, often accompanied by fatigue in church leaders and dissatisfaction in congregation members. They note that any group transitioning beyond the 200 limit ‘will need to develop a way of leading and governing that goes beyond the energy and personal availability of its pastor’ (George & Bird, 2017, p.167). In support of this they cite church growth pioneer, Peter Wagner:

In a church setting the group can expand to 80 and sustain most of the interpersonal qualities. However, when it goes past 80 toward 200, the relationships are increasingly

strained. *By the time it gets to 150 most groups are so stressed out that they can no longer handle the thought of strangers entering the group and thereby increasing the stress.* Without knowing they are doing it or without even wanting to, they relate to strangers like two identical poles of magnets. (Wagner, 1980, *cited in* George and Bird, 2017, p. 154-155, *emphasis added*)

We add emphasis to the 150 figure as the point at which, according to the SBH, any community centred on a single leader would approach its numerical limit, and become unable to expand much further. Wagner's observation that the congregation at the limit of its numerical capacity, may be aware of their increased antipathy to numerical growth, without necessarily choosing or understanding their aversion to new members, could be taken as a further indication of an underlying biological process driving the self-limitation of the group of 150 people.

As anticipated by the SBH, the shift from the small church of under 200 to the medium church of 250-400 attendance can be conceptualised as a change in the primary circle of belonging. In the sub-200 church, 'the primary circle of belonging is the entire church body. In the medium-sized church, the primary circle is the affinity class or ministry group' (Keller, 2006, p. 10). It is these specific sub-programmes, ministry groups and classes that in Keller's words, 'allow the church to fly' (p.9)- each of which is approximately 10 to 40 people. Any congregation growing beyond 200 must possess 'a willingness to question the unwritten policy that every voting member should have a face-to-face relationship with every other member' (Keller, 2006, p. 7). This is often voiced by older members of the congregation as a complaint, that the church is becoming 'too big' or 'impersonal', when faced with members of the congregation they barely know.

The majority of the church growth literature cited above is derived from leaders of churches, or consultants on church growth, rather than precise empirical data. In identifying the stages at which size transitions become evident, they are drawing on experience of hundreds, if not thousands, of congregational case studies. The contributors to this literature differ among themselves in labelling categories of church size and the numerical thresholds at which various stages of growth occur, but they demonstrate deep insight in identifying the qualities and tensions that broadly characterise congregations of different sizes. In terms predicted by the SBH, they largely reach a consensus that overcoming the *200 Barrier* will require any growing congregation, a figure which no doubt represents a rounding up of the maximum number of people to which a single pastor can meaningfully relate.

Subdivisions Retain Membership Involvement

The necessity for a growing congregation to move beyond a single person leadership structure- the prominent theme of the previous section- occurs not just at the transition beyond a congregation of 200, but at every proposed numerical barrier in congregational growth. According to the SBH, the predicted layers of relatedness continue out beyond 150 to 500, 1500 and 5000. These can be loosely identified, respectively, as acquaintances, the number of people we know by name, and the number of people whose face we would recognise (but not necessarily know by name). The relationships between individuals in these outer layers seem to be of a very much looser quality. The quality of relationships in these layers often seems to depend on a single shared common trait (membership of a club, organisation, church or other interest group). As noted earlier, very few congregations grow beyond the 150 watershed. In North America, for example, churches with an attendance of 100 are already larger than 60% of their North American peers, those with 140, 85 percent; at 350, 93 percent; and at 500, 95

percent. Writing directly to church leaders, George and Warren assert, ‘at 1,000 you hit the 99th percentile. When your average attendance climbs beyond 2,000 (99.5th percentile), your identity is so distinct that this chapter could list every such North American church by name’ (2017, p. 150).

The assumption that the charisma and transformational qualities of the church leader alone are sufficient to drive member retention and growth has not been established empirically (Brooks, 2018). George and Bird (2017) refer to it as the ‘insane idea that... it is possible for one person to be available to take care of 100, 200, 500, or 800 other people’ (p. 194). ‘Even extraordinary talent and extra-mile dedication cannot prevent eventual burnout’ they note, and warn that the ‘pastor who sets up an “I am the caregiver” expectation by repeatedly saying, “Let me be your pastor,” will sooner or later be pulled to the point of exhaustion’ (George & Bird, 2017, p.194).

Congregations of larger size confront a significant dilemma. One of the advantages of a larger congregation is the increased financial income and societal impact that a larger body of people can accomplish. As the social bonds in a group of 500 or 1500 are weaker than those of a group of 150, this less intense involvement allows congregation members greater freedom of movement to participate in groups beyond the church congregation. Consequently, members of larger churches often report greater civic involvement, partly as a result of belonging to a larger but looser network of relationships that makes contact with a wider range of external groups. However, this greater exposure to society at large is coupled with the risk of diluting the identity of the group as a whole. Weaker social bonds allow the congregation a greater freedom of movement, but also risk diminishing the sense of belonging, leading to the disaffiliation in its members.

As predicted by the SBH therefore, congregations that grow towards 500 or even 1500 require a change of gear in their relational dynamics and some strategic reorganisation into smaller sub-groups in order to remain viable. When it comes to large churches (400+) it is often small group fellowships of no bigger than 15, which act as ‘miniature church’ for congregation members (Keller, 2006, p.11). Dougherty and Whitehead (2011) note the role that small groups play in maximising the involvement of members of large churches. Their case study of a two thousand-member congregation demonstrates that, even in the largest of churches, members involved in small groups ‘devoted to prayer, discussion, or Bible study report a greater sense of belonging, more frequent attendance, and higher rates of giving’ (p. 91).

Belonging to small groups attached to a larger congregation however plays a fundamental role in the civic engagement of its members. Whitehead and Stroope’s (2015) analysis of data drawn from over eighty thousand individuals in 424 congregations, indicates that individuals who are members of church-based small groups are more likely to report high civic engagement. But the motive for promoting small groups makes a difference. Congregations which promote small groups primarily as a means of member retention report reduced civic engagement overall. The larger body of the congregation connects its members with a wider network of civic involvement, whereas the small group retains a sense of belonging to the congregation and thereby maintains the sense of identity and personal agency in its membership.

In a similar vein, McClure (2015), categorised 250 congregations, into four size categories: small (40 members), average (150), large (500) and megachurch (2,000). Data representing over fifty thousand church attenders indicated that those who belonged to larger churches were less likely to be highly socially embedded (i.e. report having close friends) in their congregation. Nevertheless, those who were highly socially embedded in larger churches were

also more likely to be involved in organisations in the wider community. McClure suggests that ‘social embeddedness in small and average-sized congregations does not encourage involvement in community organizations’ (2015, p.284), perhaps reducing involvement in the wider community through a tighter-knit social network which reinforces group identity and homogeneity. Conversely, ‘larger congregations, with their weaker social networks and greater social diversity... may have more bridging social capital, which relates with broader community involvement’ (McClure, 2015, p. 283-4). As predicted by the SBH, the group of 150 becomes a community of its own, but a larger group with consequently weaker social bonds between its members, encourages openness to the broader civic community, and motivates involvement in smaller groups.

Conclusion

In this article we have aimed to demonstrate that Dunbar’s Social Brain Hypothesis provides an accurate and useful theoretical framework to account for many of the findings of the church growth literature. Its predictions concerning the size of human social groups based on the size of the human brain provide a compelling explanation for widely acknowledged features of congregation growth: the disengagement of church members in larger congregations, the self-limiting size of single-leader churches, the concentric circles of relationship reported in Christian scripture and church organisation, the numerical thresholds at which growing congregations report tension and reorganisation, and the requirement of small groups to provide a sense of belonging in larger congregations. As an evolutionary theory the Social Brain Hypothesis does not entirely fit within the current social science paradigm of church growth, nor within the extensive empirical and practical material generated by the church growth

movement. It can therefore rightly be considered a distinctive third strand in the empirical study of church growth.

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