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Problems and Approaches in the Management of Intellectual Capital in Religious Organisations: An Issue of Complexity

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Abstract. The current research uncovers problems with a religious organisation's Intellectual Capital (IC), and the approaches organisational leaders take to overcome these problems. It is situated as an issue of complexity, in which there are varying levels in both problem and approach. This is outlined according to David Snowden's *Cynefin* model. It is suggested that complex IC problems require complex IC approaches, while simple problems can make use of simple approaches. Two case studies with churches in the American South were used. Focus groups with these churches identified IC assets of strategic importance, problems, approaches, and current success. Surveys were distributed to church attendees to identify levels of vitality — a well-established measure of success in churches that aligns closely with the areas of IC. Analysis showed that when the complexity of approaches matched the complexity of the identified IC problems, churches were more optimistic about their ability to extract value from these assets. This led to increased efforts to realise that value, and members were more likely to agree that this value was present in the church. Mismatches were associated with chaos, decreased perception of church vitality and movement away from the mission. This research adds to existing research on IC complexity, operationalises problems and liabilities in these assets, and provides insight into a unique organisational setting for IC research.

Keywords: Intellectual capital; complexity; churches; intellectual liabilities; religion.

1. Introduction

It has become a truism that organisations are complex, yet there is important nuance to be uncovered in this assertion. According to Snowden's (2002) *Cynefin* model, complexity represents a specific domain within Complex Adaptive Systems (CASs). A CAS is made up of "living, independent agents ... [who] self-organize and continuously fit themselves, individually and collectively, to ever-changing conditions in their environment" (McElroy, 2000, p. 48). A human CAS is able to impose temporary order and structure within these systems, however (Snowden, 2002), such that not every domain within them is complex. According to the Cynefin model, there exist simple, complicated, complex, and chaotic domains. Thus, complexity is

defined in the current study as a characteristic of specific domains that exhibit shifting and irreducible interactions, unpredictability, and cause-and-effect relationships that can only be known retroactively.

A central concern within CASs is that complexity is either misunderstood or outright rejected in favour of the assumed predictability and comfort of simplicity. This oversimplification is a natural human tendency (Norman and Stappers, 2016). An article in Forbes noted society's "obsession with oversimplification" (Myers, 2016). The problem of concern in the current study is when complex Intellectual Capital (IC) problems are approached with simple solutions: "Disasters can occur when complex issues are managed or measured as if they are merely complicated or even simple" (Westley *et al.*, 2007, p. 10). A match between the complexity of approach and the complexity of the problem should then lead to greater success.

Although this mismatch of solution and problem could be studied within several areas, the current study looks specifically at these mismatches with IC assets. IC includes all "non-tangible resources that ... contribute to the delivery of the organization's value proposition" (Marr, 2008, p. 5). This emphasis on IC follows the call by Dumay (2009) for more work to "acknowledge and empirically investigate the complexity of IC in organisational settings" (p. 194). IC assets are central to success, and it is easy to identify potential oversimplification within the management of these assets. This can occur as leadership is too quick to "make the intangible tangible" (Dumay, 2009, p. 205) through codification efforts. Oversimplification can occur through an overreliance on existing frameworks to analyse IC (Chaharbaghi and Cripps, 2006), or as a result of leadership relying too much on the same toolbox of approaches to solve perceived problems in their IC without respect to their complexity.

1.1. *Problem statement and objectives*

Although existing literature suggests that this oversimplification is problematic, there is little research looking at the direct outcomes of such oversimplification. While Snowden and Boone (2007) outlined different leadership approaches that should be taken in different domains of CASs, there is little evidence of what actually happens when mismatches in approach and domain occur. To that end, the current study seeks to answer the question:

> **RQ1.** *What happens when complex IC problems are approached with simple solutions*?

The following objectives are, thus, outlined for the current study:

(1) Identify outcomes when problem complexity and approach complexity in IC management do not match.
(2) Further explore the nature of IC in religious organisations.
(3) Uncover problems in IC management in religious organisations.

(4) Identify the nature of approaches to problems in IC management in religious organisations.

1.2. *Context*

To answer the question posed in the problem statement, and meet the study objectives, two case studies with American churches in the South were used. Churches are unique contexts, and the researcher was unable to find research directly looking at IC in these contexts. Churches share many characteristics of other non-profits yet are also distinct. Similar to other non-profits, they have "an embedded social purpose" (Austin *et al.*, 2006, p. 1) that distinguishes them from for-profit organisations. They also face many of the same challenges, including declining trust from the public (Herzlinger, 1996) and for-profit organisations claiming part of the non-profit space (Ryan, 1999; Kong, 2015). Prugsamatz (2010) argued that these challenges "call for a need for non-profit organizations to be able to learn more effectively" (p. 244), and this call is equally valid for churches.

Yet, churches are distinct from other non-profits in many ways that may impact how they manage IC. For instance, they are exempt from the requirement to file a Form 990 in USA, a public disclosure of finances that most other non-profits are required to complete (IRS, 2018). The responsibilities of church's top management are also unique in that they are founded on distinct biblical concepts that emphasise collaboration, and uniquely crucial given that there are typically very few paid staff (Perkins and Fields, 2010). The spiritual purpose of a church adds an additional layer that may impact its approach to IC. These variables may not impact a church's IC management at all, but it is important to account for them. Thus, rather than merely applying existing literature on non-profit IC to churches, the nature of church IC will emerge from the findings of the current study.

In each of the study's two cases, church leadership engaged in a 90-min focus group (FG) to identify specific IC assets valuable to self-identified goals, current levels of success in the use or extraction of these assets for those goals, and approaches offered to increase the value of each asset. From these discussions, it was possible to analyse the nature of complexity in a given IC problem, as well as the nature of complexity in leadership approaches to addressing these problems. An IC problem is anything noted by leadership that keeps a given IC asset from contributing to the organisation's mission. An IC approach is what leadership does to overcome these stated problems.

FG discussions revealed a match or mismatch in problem and approach complexity. Then, an analysis of actual levels of success revealed consequences of any mismatches. This analysis included discussions of current success by leadership, as well as a survey of church attendees to measure perceived vitality — a well-established measure of church success. Results show that a mismatch in complexity between problem and approach had negative consequences, while matches ensured a path towards success in the use of IC to achieve certain goals. Although this has been

conceptually argued (Snowden and Boone, 2007), research has not yet shown empirically that matching approach and problem in terms of complexity is related to success.

2. Literature Review

2.1. *Complexity of problems in organisations*

Problems in organisations can be defined in light of theories of Complex Adaptive Systems. An organisation's adaptability comes out of the reality that they operate within an environment that is constantly changing, and to which they must remain open and adaptive in order to survive (von Bertalanffy, 1968). Their complexity comes out of the interactions among local agents within the system who develop their own rules about how this happens (Stacey, 1996). Yet, because of humanity's ability to provide at least temporary structure, there are certain areas within an organisation that have clear and well-established patterns (Snowden, 2002). It is within these varying levels of structure that problems in the current study are defined. Snowden's (2002) Cynefin model shows different domains within organisations with differing levels of complexity. Problems can be:

- *Known.* Known space is simple space. It is the only part of the organisation where prediction and prescription are possible — sometimes through imposed laws (Snowden, 2002). Here, the right answer to a given problem is "self-evident and undisputed" (Snowden and Boone, 2007). This is the domain of the "known knowns" (Snowden and Boone, 2007).
- *Knowable.* Knowable space is complicated space. Here, cause-and-effect relationships are not as clear as they were in the known domain. There is no single right answer, but experts can sift through the patterns: "We do not yet know all the linkages, but they can be discovered" (Snowden, 2002, p. 106). This is the domain of the "known unknowns" (Snowden and Boone, 2007).
- *Complex.* In the complex domain, there is no clear cause-and-effect patterns that experts can identify. Rather, the patterns must be allowed to develop as leaders "probe the space to stimulate pattern understanding or formation" (Snowden, 2002, p. 107). This is the domain of the "unknown unknowns" (Snowden and Boone, 2007).
- *Chaotic.* The chaotic domain is the one near complete disruption. Problems in this domain arise often as organisations fall prey to "entrainment thinking" (Snowden and Boone, 2007), though it is possible to enter this domain intentionally to escape such thinking. This is the domain of the "unknowables" (Snowden and Boone, 2007).

2.2. *Complexity of approaches to problems in organisations*

Approaches to problems can be also be defined in light of CAS theory. Each domain in the Cynefin model requires a "different model of community behaviour; each

requires a different form of management and a different leadership style" (Snowden, 2002, p. 106). Any proposed approach to address these identified problems, then, must account for these levels of complexity. In the *known* domain, appropriate approaches include the use of "predefined procedure" (Snowden, 2002, p. 106), as issues are placed into existing categories, e.g. best practices. In the *knowable* domain, appropriate approaches include the use of experts to identify patterns that already exist, e.g. good practices. In the *complex* domain, the most appropriate approach is the one that guides the conditions of the complex environment towards self-emergent ideas. In the *chaotic* domain, leadership acts first to regain stability, rather than attempting to identify non-existent patterns.

Stacey (1996) provides more insight into how leaders can approach complex problems. He outlined simplistic and complex management approaches. In the *Vicious Circle*, management ignores the complexities of the organisation in favour of the search for "savior recipe[s]" in order to "stay in control" (Stacey, 1996, p. 3). In the escape from this circle, management accepts the complexity and unpredictability of the organisational system which "enables [them] to hold the anxiety rather than defend against it and so avoid it" (Stacey, 1996, p. 17). Rather than directed, complex systems can only be guided through the manipulation of three control parameters — information flow, diversity, and richness of connectivity (Stacey, 1996). Snowden (2002) borrowed from these parameters: "By increasing information flow, variety, and consecutiveness ... we can break down existing patterns and create the conditions under which new patterns will emerge, although the nature of emergence is not predictable" (p. 107). These control parameters act like taps, such that turning the flow up on any will decrease predictability and stability. This pushes the system further from equilibrium to a place where it is capable of change (Stacey, 1996). Turning the taps off has an opposite effect. Thus, they operate as "sources of both stability and instability" (Stacey, 1996, p. 105). Engagement with these control parameters is, then, one way to view an appropriate complex approach to a complex problem.

2.3. *Intellectual capital*

Given the centrality of IC in any organisation's value structure, IC is essential to the achievement of an organisation's mission. Because research has not looked extensively at IC in churches, and because these churches are unique among the non-profit landscape, this subsection will outline IC broadly. Andriessen (2004) and Choong (2008) provide rather comprehensive reviews of IC assets noted in the literature.

IC is "knowledge that can be converted into value" (Edvinsson and Sullivan, 1996, p. 358). The assumption underlying IC is: "value is created when human, internal organisational, and external processes/relations/resources are aligned to enhance knowledge creation and exploitation" (O'Donnell *et al.*, 2006, p. 6). This includes market and infrastructure (Brooking, 2010); employee competence and

structure (Sveiby, 1997); organisational and human (Guthrie and Petty, 2000); innovation expenditures (Bounfour, 2003); and process and technology for knowledge codification (Mouritsen *et al.*, 2002, p. 21). Yet, Marr and Adams (2004) suggest that they all tend to converge towards a "three-pronged overall framework" consisting of human, relational, and structural capitals (p. 22).

- *Human capital* is the "lifeblood of the intellectual capital concept" (Marti, 2001, p. 155). It includes the skills, creativity, leadership, and general knowledge and problem-solving capabilities of an organisation's employees.
- *Relational capital* includes the intangible element of interaction, and it encompasses an organisation's external relationship with its customers and its internal social networks (Marti, 2001; Marr, 2008).
- *Structural capital* establishes important norms and ways of behaving (Marr, 2008). It includes culture, practices and routines, and intellectual property (Marr, 2008). It provides the common ground for individuals within an organisation to interpret events, the tacit or explicit ways of operating that can be valuable to the organisation, and the intellectual property over which an organisation has legal rights (Marr, 2008).

2.4. *Intellectual capital problems and approaches*

The IC within these complex organisations is itself complex (Dumay, 2009). It also brings its own unique problems and potential approaches, requiring a "diverse set of tools for its management and measurement" (Dumay, 2009, p. 193). In other words, there are several approaches to various IC problems. One central example of this is the extent to which knowledge assets can and should be codified. The *structuralisation assumption* suggests that everything should be codified: "All knowledge needs to be structuralized to be valuable to the firm" (Johnson, 2002, p. 418). This is a more cognitivist approach in which "knowledge is believed to be developed by processing incoming data according to 'universal' rules" (Venzin *et al.*, 1998, p. 38). An *autopoietic* approach is more likely to keep knowledge tacit, agreeing that organisations "cannot own the human capital assets but can utilize them on a rent basis" (Khalique *et al.*, 2015, p. 225). Here, there is no predefined world; instead, people subjectively build their own worlds as "each individual has to create his or her own knowledge through experience" (Venzin *et al.*, 1998, p. 42). Neither approach is right for all situations, because the nature of the problem changes from one context to another: "Those elements that can be made explicit as product (or support system) need to be codified ... [and] those elements that are tacit may be best managed by treating the knowledge set development as process" (Johnson, 2002, p. 422).

Similar to the broader domains in which IC exists, then, leadership should choose approaches that match the nature of the problems. Failure to do so can have serious implications. Snowden and Boone (2007) noted the example of the Palatine murders of 1993. Misreading the context and providing mismatched approaches could have

failed to reassure the community or risked credibility and trust (Snowden and Boone, 2007). Failing to codify knowledge in domains where that would be appropriate could result in lost human capital when someone retires. Attempting to codify knowledge in domains where that would not be appropriate could result in an oversimplification that strips that knowledge of its value.

These are but some examples of problems and approaches in IC. IC problems in complex organisations refer to whatever leadership identifies as getting in the way of utilising IC to achieve its mission. This can be considered a type of liability — about which there is still little research (Giuliani, 2013). In the current study, the definitions of these problems were not determined *a priori*; rather, they came from participants themselves as they discussed them. This is important, as there are several ways to define an IC problem. A participant-led definition was considered by the researcher to be more valid. IC approaches refer to actions taken by leadership to overcome these stated problems. Just as there are appropriate ways to address different domains (Snowden, 2002), there are appropriate ways to address the IC in these domains.

2.5. *Summary of approach*

Figure 1 outlines the assumptions of the current study, coming out of the review of the literature and driving the study's design. It can be read as: "When the complexity of the IC problem matches the complexity of the IC solution, the result is the realization of IC value — operationalized in the current study as connections with God, each other, and the world". Every human organisation is a CAS but is comprised of different domains based on the human ability to provide structure. Each domain is made up of unique problems with best approaches as outlined by the Cynefin model. Matching the complexity of IC solution with the complexity of IC problem should result in the realisation of value from structural, human, and relational IC values. This was identified in FGs. In churches, this realisation can be noted in attendee's feelings that they are able to connect with God, each other, and the world. This was identified in surveys. This leads directly to the problem statement and research question, i.e. what happens when problem complexity and solution complexity do not match?

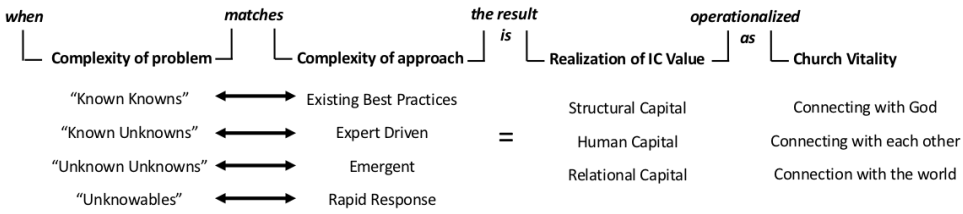

Fig. 1. Assumed outcomes when complexity of IC problem matches complexity of IC approach.

3. Methodology

The current study involved two separate case studies. A case study "focuses on understanding the dynamics present within single settings" (Eisenhardt, 1989, p. 534). Case studies are prominent in IC research (Bisogno *et al.*, 2018), and they are used in the current study because they allow an in-depth analysis required by the study's exploratory nature. The use of more than one case followed Yin's (2014) *replication logic*, such that the decision to undertake a second case study was to discover patterns in what was theorised to show contrasting results. This *theoretical replication* allowed the researcher to identify patterns in both successful and unsuccessful approaches to IC problems. Because the intent of the current study was exploratory, two cases with clear contrasts were considered sufficient to explore potential patterns. This provides the foundation for future research to transfer to new cases with similar attributes to determine the generalisability of these patterns.

Both case studies followed a mixed-methods approach in which data was collected and analysed both qualitatively and quantitatively. As such, it does not fall squarely within a standard philosophical paradigm, but instead utilises attributes of several in a way that best answers the research question (Johnson and Onwuegbuzie, 2004). The current study took advantage of the ability of qualitative methods to provide in-depth analysis as well as the ability of quantitative methods to provide statistical power to the findings. Although there is no universal approach to mixed research (Feilzer, 2010), the approach of the current study can be understood by utilising the framework proposed by Johnson and Onwuegbuzie (2004). Here, the dominant paradigm driving the research was qualitative, focussed on in-depth analysis of single cases. Focus groups were utilised first. Then, a quantitative "mini-study" (Johnson and Onwuegbuzie, 2004, p. 20) was conducted in the form of a survey. These results were synthesised. Thus, the following framework is used: QUAL–Quant. The overall objective of the research was to understand more about the nature of IC problems, approaches, and outcomes. This use of multiple data collection methods strengthens the findings of case study research (Eisenhardt, 1989). Mixed-methods approaches have been used in previous IC studies (Martin-Sardesai and Guthrie, 2018); and several studies have suggested the use of mixed methods in future studies (Cabrita *et al.*, 2017; Bisogno *et al.*, 2018; Loulou-Baklouti and Triki, 2018).

3.1. *Sample*

A list of churches was obtained through a simple Internet search. A total of 25 church pastors in an area in the American South were randomly selected and sent an email with a description of the study and an invitation to participate. Because this was an exploratory study, there was no specific criteria for inclusion. Of these, five pastors indicated interest. The researcher met with these pastors to discuss the project in more detail. From these five, two sites were chosen for the study. The two sites were chosen based on their expressed interest in IC and their likelihood that they would produce contrasting results — required according to the study's

Table 1. Descriptive statistics of survey participants.

Age	C1	C2
Under 50	11	19
50+	66	29
Gender	C1	C2
Male	32	23
Female	47	26
Race	C1	C2
White	76	35
African American	1	13
Hispanic	1	2
How long they have attended the church	C1	C2
<1 year	4	6
1–3 years	3	8
4–6 years	3	3
>6 years	65	31

replication logic. The pastor was then asked to identify what he considered to be his leadership team. This made up the sample for the FG. The potential sample for the survey included the entire weekly membership of each church. Because information was provided during two consecutive weekly services, the actual sample was made up of those in attendance during one of those two weeks. A descriptive summary of the survey sample is provided in Table 1.

Church 1 (C1) is a United Methodist congregation located in South Carolina, USA, with an average attendance of 249. It has activities geared towards youth and children, small group studies for adults, and Sunday school classes. An initial conversation with the pastor suggested that this church was not very successful in its approach to IC. Thus, effort was undertaken to find a second church that the researcher thought would be more likely to be successful in their approach. This was determined through conversations with pastors about the research and their level of understanding of IC. The pastor of Church 2 (C2) had a Ph.D. in organisational studies and was keenly aware of the theories and concepts of IC. It was expected that this church, then, would provide a contrast to C1 with a more successful approach to solving IC problems. Church 2 is an Evangelical Lutheran Church in America congregation located in South Carolina, USA, with an average attendance of 172. It has an older population, but with its urban location is trying to reach a more diverse audience. Both churches have primarily White attendees.

3.2. *Process*

The research process is outlined in Fig. 2. The study began with a 90-min qualitative FG held at the church with what the pastor considered their leadership team. At C1, participants were 11 individuals comprised of church staff and members of both the

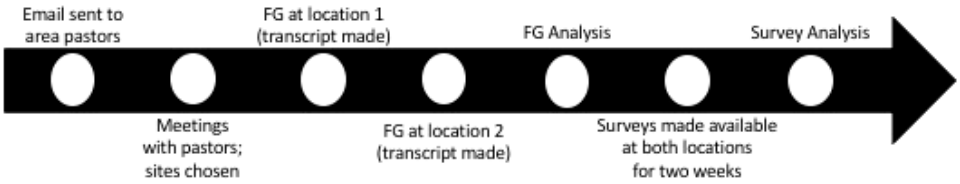

Fig. 2. Research process.

church council and the church's Long-Range Planning Committee. Of these 11, there were four females and seven males. At C2, participants were nine individuals comprised of the church leadership board. Of these nine, there were three females and six males. The lead pastor was present at both churches. The FGs loosely followed Brooking's (2010) framework, in which participants were asked to identify the assets that would put them in a "favorable position" (p. 219) to achieve organisational goals. A score was then assigned to each asset, with 5 being strong and 0 being weak. They were also asked to indicate if the asset was growing weaker or stronger.

A semi-structured FG guide was developed to engage participants in discussion about the intangible assets that would be important in achieving self-defined success. Initially, they were asked to imagine that the building burned down and all their money was lost in a bad investment. They considered what they had left that would help them achieve this success. This allowed an unprimed discussion of intangible assets that did not follow the established areas of IC. After this, a more guided discussion of each IC area was initiated, in which participants highlighted which specific IC assets in each of the three primary IC categories would be important to success. They also indicated where they currently scored themselves in these assets, and whether or not that score was trending upward or downward. They were not asked specifically about complexity or any element of the Cynefin model. Thus, the discussions of complexity were unprimed.

After this FG, surveys were distributed to the attendees of each church following the QUAL–quant design outlined by Johnson and Onwuegbuzie (2004). The nature of the surveys was not changed due to FG responses. This survey is included in the Appendix, broken down by its connection with the main IC areas. This was included to more fully tell the story of the current status of each IC area. For churches, a well-established measure of success is church vitality. Bobbitt's (2014) scale measures three constructs related to vitality: connecting with God; connecting with each other; connecting with the world. Although not meant to be measures of IC, they follow the three areas relatively closely.

- *Connecting with God* is a measure of culture and mission; thus, it closely follows as a measure of structural capital. This includes a sense that the church is spiritually vital, that there is excitement about the future, that there is a clear sense of mission, and that the church helps people deepen their relationship with God (Bobbitt, 2014).

- *Connecting with each other*, although not a full measure of human assets, does provide insight into a church's ability to identify its assets. This includes "incorporating newcomers into the [church's] life" and "seeking out and using gifts of members" (Bobbitt, 2014, p. 472). Because the strength of relationships was identified by both churches as integral to the identification of skills and talents, it is included here as a human asset rather than as a measure of structural or relational capital.
- *Connecting with the world* is a measure of the church's influence on the world outside of it, and thus represents a valid relational asset measure. This includes being branded as a church that works for social justice, addresses social concerns, "[equips] members to share their faith with others", engages with the community, utilises partnerships with other churches, and is seen as a positive force in the community (Bobbitt, 2014, p. 483).

This is not an attempt to fully develop and implement a new stand-alone measure of IC. Rather, it suggests the utility of finding existing measures of success for a given type of organisation — one that loosely follows the general nature of intangible assets — to add validity to the qualitative findings of that organisation's current status in each IC area. This is flexible, because how organisations view IC will change based on mission. For instance, *accepting newcomers* could be viewed as a relational asset in that it is a branding issue; it might also be a structural asset as it indicates a culture of acceptance. Yet, in the current study, the acceptance of newcomers was identified by participants as indicative of a larger ability to find out what people have to offer. Thus, it represents a valid measure of human assets as outlined by the churches.

Physical copies were given to the pastor to hand out on two Sunday mornings, and a link to an online version of the survey was provided in weekly newsletters. Attendees were provided with an overview of the research project, both in printed materials and from the pulpit, and invited to participate. Totally, 80 attendees of C1 filled out the survey, and 50 attendees of C2 filled out the survey — although not everyone completely filled it out, leaving some questions blank. Table 1 outlines the descriptive information about these participants. For both churches, most participants were older and had been attending the church for a longer period of time (>6 years), thus likely more ingrained in the culture of the church. Gender was evenly split. Cronbach's alpha measures were calculated for each subscale, indicating reliability: connecting with the world (Cronbach's alpha = 0.91), connecting with God (Cronbach's alpha = 0.95), and connecting with each other (Cronbach's alpha = 0.91). This matches the established reliability measures (Bobbitt, 2014).

3.3. *Analysis*

The FGs were video- and audio-recorded, and transcriptions were imported into NVivo for coding and analysis. Extensive field notes were taken after each FG, and included researcher thoughts about the process, observations about the setting,

reflections on procedure, and initial theories about emerging patterns. An exact transcript was transcribed the day after each FG, and participants were given an opportunity to review this transcript for accuracy. This audit trail increases the dependability of the research ensuring that every conclusion can be traced back to the data (Morrow, 2005). This also allowed the researcher to engage in inductive discovery of an explanation for how church leaders approach IC issues. This broad explanation is grounded in actual discussions of church leadership.

Using NVivo, a directed coding approach was used (Hsieh and Shannon, 2005). First, discussions of each IC asset in the transcripts were coded for the IC area they matched. Then, transcripts were coded again, this time coding for the level of complexity in the participants' discussion of problems associated with their IC. Next, transcripts were coded for the level of complexity in the participants' discussion of approaches. Finally, transcripts were coded for discussions related to the current status of each IC element.

The researcher inputs survey responses into SPSS for analysis. The data were then cleaned such that each question had an appropriate label and description to aid in analysis. The data were separated according to the church they came from. The t-tests were the prominent statistical tests used to identify significance among survey responses and the congregation the respondents came from.

4. Results

After outlining coding frequencies and examples needed to understand the results, this section provides an overview of the elements of IC that the church leadership felt were important. It then outlines the assumptions participants revealed about the complexity of problems associated with IC. Next, it outlines the complexity of the approaches that were actually implemented or proposed to address these problems. Finally, it outlines the current status and results of each IC area. This order matches the stated objectives of the study.

Coding frequencies are noted in Table 2. As indicated, discussion of each asset tended to be evenly distributed. This was expected, given that the FG guide was structured evenly with questions about each asset. However, discussions coded as

Table 2. Coding frequencies.

The code in NVivo	Percentage of the transcript covered by the code		The code in NVivo	Percentage of the transcript covered by the code	
	C1	C2		C1	C2
Relational capital	30%	32%	Simple problem and approach	41%	22%
Structural capital	33%	31%	Complicated problem and approach	7%	3%
Human capital	29%	30%	Complex problem and approach	8%	15%
			Chaotic problem and approach	2%	<1%

simple in either problem or approach were more predominant in C1 than in C2, though for both, discussions tended to be more about simple problems and approaches than any other level of complexity.

Given the numerous definitions and ways of working with the various terms in the study, Table 3 is provided to outline the terms. This is the way in which they were conceptualised in the current study, and specific quotes from participants showing how each term was operationalised in the coding, i.e. what does the term actually look like in practice? The previous sections outlined general conceptualisations of these terms, but these conceptualisations were narrowed by what participants

Table 3. Conceptualisation and operationalisation of key terms.

Term	Conceptualisation within study	Operationalisation within FGs
Relational capital	An organisation's relationship with potential and existing customers through its branding and reputation	A reputation within the community as "compelling, interesting, desirable", and "focused on people's needs"
Structural capital	An organisation's culture that is supportive of its knowledge activities and closely related to its mission	A "body of people growing in faith together and growing toward maturity"; Driven by a "passionate mission that matters"
Human capital	The skills and attitudes of organisational members	"We've got so many people that come here that have so many talents"
Simple problems	Problems with an obvious cause-and-effect pattern and agreed-upon correct answer	"When we first came to the church, we didn't know what to do. And they were like, 'here's your name tag, here's your choir robe, here's your book, your name's already written on the pages, so we'll see you Sunday morning'"
Simple approaches	The application of existing approaches	"We can change how the church looks and what music we play. This can draw in more people"
Complicated problems	Problems that have an identifiable cause-and-effect pattern that only experts can identify	"We've got too many arguments and battles, and just ugliness that happens in church"
Complicated approaches	The use of experts to identify an approach	"If someone comes in and has a big need that's out of the ordinary, consider 'what would Jesus do'? And the Bible and the pastor helps us figure that out"
Complex problems	Problems that have no clear cause-and-effect pattern, though the problem can be understood after analysis and reflection	"The community changes, our surroundings change . . . so if we don't change with it, grow with it, we're gonna die"
Complex approaches	Probing the organisational system itself for the answers, patiently waiting for them to emerge	"The way we stay relevant is to change in a way that people feel Empowered and have an ownership in the decisions that are being made"

Table 3. (*Continued*)

Term	Conceptualisation within study	Operationalisation within FGs
Chaotic problems	Problems that are indicators of complete disruption, often as a result of entrainment thinking	"The reality is there's a spirit here of, 'we don't want anything to change'"
Chaotic approaches	A leader takes on all decision-making with little input	"I'm not going to come to [the leadership team] with every little decision for children's ministry"

actually talked about. For instance, relational assets were conceptualised previously as both internal interactions and external relationships. However, the participants from both churches directed their discussions of these assets more narrowly around their external branding. Thus, the conceptualisation in Table 3 is narrower than what is outlined in the previous sections. The quotations then outline the operationalisation of that specifically narrow conceptualisation. This is especially important as the participants were not primed about levels of complexity. Thus, they do not discuss them in ways that directly match with the conceptualisation provided in the literature. The researcher's analysis of discussions identified them as a given level of complexity according to the Cynefin model. Table 3 shows how this was done, clarifying the results of the research and the connections to key terms.

4.1. *Relational capital*

Within relational assets, both churches focussed primarily on branding. C1 wanted to be seen as useful, in order to inspire brand loyalty. Usefulness was defined as being "focused on people's needs". This extended not only to "spiritual needs", but to "all of their needs". C2 used their mission statement to help outline their relational assets, highlighting the need to bring more people into the church: "Our mission statement is reaching out to draw others to Christ". They wanted to develop something that those outside the congregation would find "compelling, interesting, desirable". Part of this was a clear sense of the need for connecting with other community partners.

4.1.1. *Problem complexity*

Both congregations defined their problems in the area of relational assets as constantly changing and reliant on self-emergent answers; as such, they were complex. For C1, this was seen in their recognition that they needed to be "relevant". They noted that the definition of relevancy needed to come from the people in the community in an emergent way. They agreed that they needed to be "focused on people's needs — their spiritual needs, but also all of their needs". They recognised that this "certainly could be ongoing and changing". Participants agreed on: "the community changes, our surroundings change ... so if we don't change with it, grow with it, we're gonna die". The problem, however, was that they did not know their

community well enough to market to them: "How can you market whatever it is that needs marketing if you don't know what your customer base is?"

For C2, this was seen in the notion of struggle: "We want to struggle toward or grow toward being more effective within that outreach, beyond the walls". There were no clear answers to how this was done. They also recognised that answers never last long: "We don't say, 'hey, we've done it, we're done'. That's never true". Participants suggested, "The way we stay relevant is to change in a way that people feel empowered and have an ownership in the decisions that are being made".

4.1.2. *Approach complexity*

Although they defined the relational asset problem as one that was complex, C1 approached it with simple approaches. This was noted in their suggestion: "We can change how the church looks and what music we play. This can draw in more people". Participants often fell back on a simple *a priori* description of market needs: "As far as being a church, we know what they need. Regardless of how it's packaged; they need Christ, and they need the hope — the acceptance, the love, the forgiveness of Christ". They also relied heavily on demographic information as a ready-made means of improving their place within the community: "In 10 years [the community] is going to be 90 percent Black, and we're the last White folk here if we don't address color diversity".

C2, however, used a similar word to describe both their problem and their approach to that problem — "struggle". This is a complex approach that originated out of the realities of the church itself. For instance, part of their marketing effort was to "show others that we're not perfect, but we're trying to be better". They engaged the church and the community in conversation to allow complex approaches to emerge: "We're gonna spend an hour every week listening to people's stories or sitting and talking with people".

4.1.3. *Outcomes*

Both churches scored themselves as a 3 or below in most of the relational asset elements they identified. However, following Brooking's (2010) model, they were asked to indicate if these were trending up or down. C1 was trending down in most areas, while C2 was trending up.

The simple categorisation according to demographics in C1 was not accurate and did not increase their market value. When they determined that the demographics were shifting, many in the church assumed, "Well we should play a whole bunch of spirituals". One participant described this reaction as "cringe-worthy". There was chaos in C1's relational assets, shown in leadership's direct action. For instance, in response to the difficulty of attracting younger people, the youth pastor noted, "I'm not going to come to [the leadership team] with every little decision for children's ministry".

C2 described their relational assets as trending up, partly because of the community connections they had made as a result of their approach to the problem: "We play a significant role in those places". They partnered with other churches, a homeless shelter, and an after-school programme. In spite of their lower rating of their relational assets, they still agreed: "there are people who look at this church as a valuable asset". And this was part of their mission, to be relevant to those outside the church. They agreed: "no one would walk into our church and say, 'I don't feel welcomed here'".

Survey results support this narrative. An independent t-test was conducted to determine if C1 congregants ($N = 78$) exhibited differences in perceptions of *Connecting with the World* — also viewed here as a measure of success in relational assets — than C2 congregants ($N = 49$). Analysis shows that there is a significant difference in *Connecting with the World* between C1 (M = 3.78; SD = 0.78) and C2 (M = 4.25; SD = 0.64), $t(125) = -4.7$, $p = 0.001$. C2 was more likely to perceive their connection with the world higher than C1. There was a moderate effect size ($d = 0.64$).

4.2. *Structural capital*

Within structural assets, both churches focussed primarily on culture. C1 wanted a culture that embodied the values of Jesus: "Love and truth, unconditional". They wanted the church to be driven by "a passionate mission that matters". C2 wanted a "feeling of community, feeling like family, feeling connected". They wanted the church to be a "body of people growing in faith together and growing toward maturity". They wanted an environment with "folks that are really willing to work together and live into each other's stories and bear with one another".

4.2.1. *Problem complexity*

Both congregations defined their problems in the area of culture as constantly changing and reliant on self-emergent answers; as such, they were complex. Participants felt that the church culture was not matching up with what the Bible suggested: "We've got too many arguments and battles, and just ugliness that happens in church. This wouldn't happen if we're all behaving like Jesus". For C1, this was seen in the inherent complexity of organisational communication, as they lamented the difficulty in coordinating committee work: "You feel like I can't, maybe I shouldn't do that because I don't know what the [committee's] plan is". This was also seen in C1's understanding of the unpredictable nature of human behaviour. As they discussed their openness with one another, they agreed: "On any given Sunday, depending on the person, we can score really high or we can score really low [on that]".

For C2, this complexity was seen in the difficulty of drawing the congregation into a sense of "shared life and shared work". They noted that although there is "wonderful friendship and support", it can be difficult for people to get involved:

"I hear stories of people who have been here much longer than I would imagine it would take who still don't feel like they have that connection". This connection takes time, and has no clear path. This problem was increased by the splitting of the church into three separate services: "Sometimes we feel like we're three congregations".

4.2.2. *Approach complexity*

Although they defined the relational asset problem as one that was complex, C1 approached it with complicated approaches. Participants agreed, "If someone comes in and has a big need that's out of the ordinary, consider 'what would Jesus do'? And the Bible and the pastor helps us figure that out". To fix the problem of organisational communication and what they defined as a "pastor-centric" process, they relied on a programme called Natural Church Development (NCD). This is an expert-driven approach that engages churches in an evaluation process to analyse their culture and find approaches through the uncovering of existing patterns. It offers a plan "based on research in more than 70,000 churches on all six continents" (NCD, n.d.). The assumption of this model is that a pattern can be identified through outside expertise, hence the selling of multiple books, tests, and tools outlining a five-step process. This was led by the pastor and leadership team, i.e. the experts.

C2 approached this problem with a complex approach. This was noted in their use of the vagueness of their mission as a "rallying cry" to bring everyone into the shared vision of the church. Rather than a blueprint for moving forward, they used this mission to outline both what the congregation should strive to be and what has already been provided for them: "Even more than just what we've said we'll do, it's what we've said God will do". Their approaches for getting closer to the culture they wanted involved conversation and dialogue: "Those are those pieces of our communal experience that we share and that build us up". As a result, C2 invested heavily in the development of small discussion groups.

4.2.3. *Outcomes*

Similar to relational assets, both churches scored themselves as a 3 or below in most of the structural elements they identified. Yet, C1 indicated a trend downward, while C2 indicated a trend upward. C1 was at the risk of falling into chaos due to a noted sense of complacency about "the way we've always don't it". Participants agreed, "the reality is there's a spirit here of, 'we don't want anything to change'". This led to complacency in how they dealt with new issues in the church: "Sometimes we don't want to deal with the crazy. It's too hard".

C2, on the other hand, was moving closer to the *family feel* they strived for. This was noted especially through small groups: "For me, the most meaningful relationships I've formed seem to come from Bible study groups". The church was also successfully bringing newcomers into this culture of strong ties. One participant noted bringing a man into the congregation who changed out of a tank top before he

entered the sanctuary: "I said, you didn't have to change your shirt. We've had people come in shorts, and I said, come as you are". They agreed that they were "removing the barriers" to full participation in the culture of the church.

Survey results support this narrative. The assumption of equal variance was not met; thus, a Welch's t-test was conducted to determine if C1 congregants ($N = 80$) exhibited differences in perceptions of *Connecting with God* — also viewed here as a measure of success in structural capital — than C2 congregants ($N = 50$). Analysis shows that there is a significant difference in *Connecting with God* between C1 (M = 3.9; SD = 0.76) and C2 (M = 4.37; SD = 0.59), $t(122.56) = -3.98$, $p < 0.001$. C2 was more likely to perceive their connection with God higher than C1. There was a moderate effect size ($d = 0.68$).

4.3. *Human capital*

Within human assets, both churches recognised that they *had* these assets, but wanted to know more about them. C1 agreed, "We've got so many people that come here that have so many talents". C2 indicated that this was their most important asset: "The people are the church, not the building". They recognised that congregants had "various talents", "faith", "compassion", and "empathy" that are important to the success of its mission.

4.3.1. *Problem complexity*

Both congregations defined their problems in the area of human assets as constantly changing and reliant on self-emergent answers; as such, they were complex. In spite of the recognition of the value of human assets, C1 had trouble identifying them: "I don't know where they are or what they do". Yet, this was not seen as simply a collection of answers to a church-wide questionnaire; instead, they wanted to "provide an environment where we can tell our stories. That's where a lot of that information comes out". This is a complex process of self-emergent development.

C2 also indicated that the identification of these assets required storytelling, and this had historical foundations: "The church has always been based on people sharing their experiences of God with one another. It's how Scripture came to be". Yet, they recognised that this was more than an inventory of skills: "I'm a CPA in the world, that doesn't mean that in the church my vocation is to be the treasurer". Yet, they too struggled in identifying these assets: "We have trouble matching people to opportunities". This is similarly complex.

4.3.2. *Approach complexity*

Even though C1 noted the importance of stories, their approaches tended to focus on a simple inventory of skills: "Just learning about what each person's skill is could help us". And even when stories were offered as an approach, the analysis of these stories involved a complicated process of categorisation. For instance, previous attempts to collect stories involved putting these stories into a searchable database.

They attempted to codify these stories according to categories of experience that could be searched by others in the church. Congregants could know, for instance, "They've been through cancer, or they've lost a loved one". C1 also utilised the *PLACE* ministry programme to help them extract and make use of human assets. Although this programme purports to be a process of "self-discovery", it also describes itself as a "step-by-step implementation process" (PLACE, n.d.). This is a complicated approach.

C2, on the other hand, focussed on providing the opportunities in very open and vague ways to allow congregants to express their skills and creativity. For instance, in their work with homeless families, they were able to find "about 60 people that that's their niche". By offering these programmes that appeal to different people, they were providing an environment for people who "want to be a part of connecting and serving in their different ways". This is complex, as the environment is equipped, yet the precise nature of these assets emerges as people volunteer. They also emphasised helping people increase their confidence to provide their talents — another environmental factor: "Encouraging people to trust in the confidence they have in Christ and in the Spirit to step out". This was aided by a desire to "make space for people to take risks". In addition, the richness of the stories was maintained rather than being compressed into codifications: "We can find those stories and share them in a way that people can see pieces of themselves in your story".

4.3.3. *Outcomes*

As was the case with the previous assets, both churches scored themselves very low — not on actually having human assets — but on their ability to find out what these assets are and extract any value from them. Yet, C1 indicated a trend downward and C2 a trend upward.

C1 was not able to continue their collection of stories, as people stopped contributing them: "The stories stopped coming". They lamented the continued lack of understanding regarding these human assets. One participant noted that discovery of such assets still comes by accident, rather than out of an environment that supports this: "I learned by happenstance that this one guy runs an HVAC company; that's good to know". Thus, they lack intentionality and have not equipped the environment with the tools necessary to allow this to happen.

C2, on the other hand, was learning more about its members. It successfully developed an initiative where each committee meeting began with an unstructured time of sharing. They were asked to put aside the business concerns of the meeting for at least 15 min to "give a little time for conversation". By asking questions like: "What are you reading in the Scriptures right now that's intriguing to you?", C2 indicated that they were able to "leverage love and support to find out what's going on".

Survey results support this narrative. The assumption of equal variance was not met; thus, a Welch's t-test was conducted to determine if C1 congregants ($N = 78$) exhibited differences in perceptions of *Connecting with each other* — also viewed

here as a measure of success in human assets — than C2 congregants ($N = 50$). Analysis shows that there is a significant difference in *connecting with each other* between C1 (M = 3.62; SD = 0.76) and C2 (M = 4.33; SD = 0.59), $t(121.13) = -5.85$, $p < 0.001$. C2 was more likely to perceive their connecting with each other higher than C1. The effect size was large ($d = 1.03$).

5. Discussion

Table 4 outlines the links among IC problems, approaches, and outcomes. The results are split into FGs and survey results. The question driving the current study (RQ1) was what happens when complex IC problems in churches are approached with simple solutions. Uncovering this answer was the study's first objective. Results suggest that this mismatch led to a downward trend in optimism surrounding the value the church thought it could extract from these assets. C2 showed a much clearer optimism than C1 with each asset category, and this was matched by actual efforts to increase the value from those assets. For relational assets, C1 experienced unintentional chaos from a shrinking market share, while C2 experienced a growth in their community partners and subsequent relevancy. For structural assets, C1 was

Table 4. Outline of problems and approaches in each IC area, and the current determination of success through FGs and vitality measures.

IC area	Church	Problem complexity	Approach complexity	Result as current success trend (from focus groups)	Result as current vitality measure (from survey)
Relational capital	C1	Complex	Simple	Downward trend: "Cringe-worthy" results	Connecting with the world (M = 3.78)
	C2	Complex	Complex	Upward trend: "We play a significant role in [the community]"	Connecting with the world (M = 4.25)*
Structural capital	C1	Complex	Complicated	Downward trend: "There's a spirit here of, 'we don't want anything to change'"	Connecting with God (M = 3.9)
	C2	Complex	Complex	Upward trend: "Removing the barriers" to full participation	Connecting with God (M = 4.37)**
Human capital	C1	Complex	Simple	Downward trend: "The stories stopped coming"	Connecting with each other (M = 3.62)
	C2	Complex	Complex	Upward trend: "Leverag [ing] love and support to find out what's going on"	Connecting with each other (M = 4.33)***

Note: *Difference was significant, $t(125) = -4.7$, $p = 0.001$; **difference was significant, $t(122.56) = -3.98$, $p < 0.001$; and ***difference was significant, $t(121.13) = -5.85$, $p < 0.001$.

at risk of chaos due to a noted sense of complacency, while C2 experienced a strengthening of shared cultural mission through small groups. For human assets, C1 had stopped learning about what they had, while C2 was ramping up efforts to discover these assets. This was supported by survey results where the associated success metric for each IC asset was significantly lower when there was a mismatch. This has important implications for practice. It suggests that leadership understand fully the nature of their IC problems — and the various means of approaching these problems — in terms of their complexity.

The second objective of the current study was to further explore the nature of IC in religious organisations. This is important given that most of what the church offers is intangible, and there is little research that looks at this. The IC valued in these two churches tended to follow the typical distinctions of relational, structural, and human capitals. Yet, other IC elements emerged that are not typically seen in the IC literature. For example, the notion of *struggle* as an asset is unique, creating a truly learning and growing culture that sees failure as inevitable and something to be celebrated. Other organisations can utilise this to escape the vicious cycle (Stacey, 1996) of predictable and immediate success.

The third objective of the current study was to uncover problems in a church's IC management. Both churches viewed problems associated with IC development and use as complex. For structural assets, this included the complex task of human communication and coordination of work. For relational assets, this included the continuously shifting nature of the humans who owned these assets, and the struggle to help those individuals discover their roles within the church. Future research should look into whether or not problems are defined similarly in other organisational types. In other words, are IC problems inherently complex? This has important implications for answering Dumay's (2009) call for continued research into IC complexity. It also continues research into IC liabilities, what Dumay (2013) suggested was "one of the most under researched or more realistically, avoided, topics in the IC literature" (p. 7), by operationalising actual problems with approaches to IC asset management.

The fourth objective of the current study was to identify the nature of approaches to problems in a church's IC. Although both churches defined the problem similarly, they differed significantly in their approach. C1 tended to approach problems of increasing IC value by splitting the problem into manageable pieces and bringing in approaches outside of the system. For relational assets, they relied on simple existing categories of population. For structural assets, they relied on an external best-practices model to identify separate elements of their culture, relying on a complicated interpretation of existing Scripture. For human assets, they relied again on an external best-practices model to extract predetermined categories of human ability. C2, on the other hand, tended to approach these problems by tapping into the emergent possibilities of the system itself. For relational assets, this involved engaging the community in a conversation out of which the needs to be addressed would emerge. These categories would not exist until after such conversations.

For structural assets, they relied on a vague mission to which every agent within the system could add. This sharing of stories and ideas is an emergent process as it "build us up". For human assets, they were less direct in their matching of attendees to opportunities, instead providing the environment for different skills to be utilised and allowing attendees to self-select themselves as part of these processes in creative ways. This has implications for IC management, suggesting that approaches to complex problems develop within the context in which they will be used.

5.1. *Limitations*

The current study is limited to two cases. Thus, it is important to be cautious about generalising this to other contexts — even other churches. Because the second church was intentionally chosen as a contrast to the first church, based on replication logic, further research is needed to determine whether or not these patterns exist in other organisations. The sample was further limited by geography and a general lack of interest from churches in the area. It is possible that the two churches that did agree to participate are significantly different from other churches in the area that did not want to participate — though this is not expected to be the case. The researcher also had limited exposure to both contexts. It is likely that additional patterns would have emerged through extended participant observation. Yet, this was beyond the scope of an exploratory study. Future research into IC complexity should consider longitudinal studies. Finally, the survey results were limited by those who happened to be in attendance on the Sundays they were distributed. Thus, respondents were more likely to be regular attendees.

6. Summary

The current study achieved several objectives aimed at further exploring the nature of IC management, outlined primarily as realising value from IC assets. First, it explored and outlined IC in religious organisations — a context missing from IC literature. Results suggest that although IC is similar, there are additional categories considered valuable in a religious context that have not been noted in traditional business contexts. Second, it uncovered the nature of problems associated with IC, operationalising the liabilities in IC. This is an area in need of further research (Giuliani, 2013; Dumay, 2013). These problems tended to centre on the inability to extract value from IC that the churches knew they had. By further considering the complexity of these problems, the study sheds additional light on the nature of IC. Third, the study uncovered the ways in which leadership attempted to overcome or provide solutions to these IC problems. These approaches were similarly analysed according to their complexity. The application of the Cynefin model (Snowden, 2002; Snowden and Boone, 2007) to IC in the current study extends the reach of complexity science research, suggesting that future research into IC must consider the complexity of problems with — and approaches to — this intangible value.

The driving question of the current study was what happens when the complexity of an IC problem does not match the approach used by leadership to solve the problem. Findings suggest that such a mismatch leads to a downward trend in a church's optimism about its ability to extract value from IC assets. And this negatively impacts actual work toward addressing these problems. The assumptions outlined in Fig. 1 were generally found in the study results, though it is an overstatement to conclude that the church *fully* realised IC value. Instead, leadership exhibited increased optimism about their ability to realise this value. This then led to increased efforts to realise that value. And survey results showed that members agreed that the church engaged in these efforts was realising more of its IC value. These results suggest that it is important that organisations understand the complexity of IC problems and approaches. It also suggests that, in their search for success and predictability, organisations must avoid oversimplifying their IC management.

Appendix A. Church Vitality Survey Organised by IC Areas

Table A.1.

Relational capital	Structural capital	Human capital
This congregation works for social/justice advocacy	This place is spiritually vital	This congregation is a close-knit family
This congregation is a positive force in the community	There is excitement about the future here	This service is welcoming to visitors
This congregation is addressing social concerns	There is a clear sense of mission here	This congregation accepts newcomers
This congregation is equipping members to share their faith with others	This place helps people deepen their relationship with God	This congregation incorporates newcomers into congregation's life
This congregation is interacting with the local community	This congregation is focussed on doing God's work	This congregation seeks out and using gifts of members of all ages
This congregation is partnering with other congregations in the area	This place has lots of meaningful activity	This congregation builds strong, healthy relationships among members
This congregation is helping members live out their faith in daily lives	This congregation is always ready to try something new	This congregation manages disagreements in healthy, respectful manner
	The worship service is filled with a sense of God's presence	This congregation involves youth or young adults in decision-making
	The service is joyful	
	The service is nurturing of people's faith	
	This congregation helps children and adults grow in their faith	

Note: Survey of congregational vitality. Adapted from Bobbitt (2014).

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