Sticky IT Workers:
Discovering Why Information Technology Professionals Retain Their Employers

By
Phillip (Mike) Lewis
plewis09@georgefox.edu

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by

P. Mike Lewis

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Approval Signatures:

Tim Rahschulte, PhD, Chair — Date: 10-31-13

Jim Steele, PhD — Date: 11-4-13

Mark Rennaker, PhD — Date: 11-11-13

ABSTRACT

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Phillip (Mike) Lewis
George Fox University

In the current business climate and social technologies expansion era, Information Technology (IT) workers are important organization contributors that connect organizations into today's data-driven, highly social, and always-on global economy. Thus, organizations need IT workers. Unfortunately, as a class, IT workers have developed a reputation that includes short organization tenures. However, not all IT workers suffer this stigma, some IT workers *stick* with one organization for a long time. Discovering why these Sticky IT workers retain their employers provides insights and direction for organization leaders and architects to help them shape their organizations into those that IT workers choose to stick with.

In this phenomenology, Sticky IT workers were interviewed to discover and describe organization qualities that are important them. That is, the research investigated," Why do you stay?" which distinguishes it from research that asks, "Why did you leave?" or "Why do you intend to leave?" Seven themes emerged from the investigations - learning, people, pay, career, opportunity, environment, and organization - to collectively provide organization leaders and architects a priority-ranked map of organization qualities that lead to increased IT worker tenures.

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- Definitions -

Attrition – A term designating an unplanned or unwanted employee's departure from an organization (see Turnover).

IS Worker – A term substituted for IT Worker by some authors, see IT worker.

IT Worker – Narrowly, a person (worker) employed in any of the Information Technology Occupations Standard Occupation jobs (codes 15-xxxx) defined by the United States Bureau of Labor Statistics (http://www.bls.gov/soc/soc_2010_definitions.xls).

Retention – A term designating an organization's ability to keep or retain the workers required to be a productive organization.

Stick (*sticky, stickiness*) – Stickiness is a multi-factor condition that describes workers with tenures of at least one Standard Deviation beyond the average. Sticky exists at the intersection of a worker's decision to defer employer change and the organization qualities that directly influence worker's choice to defer (to stay).

Tip (*tipping, tipped*) – Term used to describe individual or collective decision points that lead to changing employer (organization)

Turnover – A workers departure from the employing organization, not initiated by the organization (see Attrition).

Worker – Individuals or an individual engaged in production efforts for an employing organization, an employee.

Chapter 1 – Introduction

As the United States continued an economic recovery through 2012 and into 2013 employers added jobs, unemployment rates lowered, and the nation looked toward a return to normal, or at least the new normal (Solis, 2012). However, some workers never noticed the decreasing unemployment because for them unemployment did not increase during the economic downturn of 2008 to 2010, at least not enough to warrant their attention (Bureau of Labor Statistics, 2012). Technology workers were one of the minimally affected categories.

Often labeled Information Technology, Information Systems, or Hi-Tech workers, this class of worker emerged in the 1970s and has operated outside of the regular employment cycles, systems, or constraints ever since (Armstrong, Riemenschneider, Allen, & Reid, 2007). Moreover, from the Dilbert comic strip to the evening news, technology workers' ability to separate from the regular employment constraints has been considered media-worthy for more than 20 years (Dilbert.com, 2013). Recently, NBC Nightly News reported, "Nationwide there is still strong demand for skilled workers especially in high tech" (Tom Costello, 2:15) and, "In the broader economy there's unemployment, in the technology sector there is full employment" (Jim Franklin, 2:27) (Dec 07, 2012, http://video.msnbc.msn.com/nightly-news/50124072/#50124072).

Technology worker research further supports a disconnection from ordinary employment constraints. Janz and Nichols (2010) suggest, “while the supply has leveled off...” IT worker demand “will continue to increase for the foreseeable future” (p.8). Moreover, organizations worldwide will continue to struggle to hire hard to find technical and engineering workers (Bishop, 2011). Thus, the available technology worker supply must be expanded beyond recruiting and hiring efforts to include developing, advancing, and retaining IT workers (Janz & Nichols, 2010). Restated, there are not enough IT workers and organizations need to keep the ones they have. In an effort to offset IT worker shortages, organizations such as IBM and Lenovo have turned to high schools to entice, prepare, and train the IT workers needed to maintain their organizations’ competitive advantages (Channel Insider, 2012). Given IT worker shortages that encourage global companies to pursue IT talent in high schools, organizations must shift their IT worker energies from replacement to retention (Janz & Nichols, 2010).

Why? Why should organizations be concerned about IT worker retention? As a member of this worker class, and an IT organization leader, the how’s, why’s, and what’s that affect the IT professions are of special interest to me. More broadly, U.S. organizations spend 22 to 89 Billion dollars annually to replace 606,402 departing IT workers; that is $36,860 to $147,440 for each IT worker (Bureau of Labor Statistics, 2010; Gaylard, Sutherland, & Viedge, 2005; Von Hagel & Miller, 2011). Moreover, turnover among certain IT workers also carries additional indirect costs including lost opportunities, delayed response to changing market conditions, or missing technology advances as well as the loss of specific (tacit) knowledge, and project delays (Ghapanchi & Aurum, 2011). IT worker retention “is vital to an organization” (McKnight, Phillips, &

Hardgrave, 2009, p.167) because IT workers possess the knowledge that interconnects business processes as well as skills that are hard to replace or expensive to develop. Moreover, given the ongoing global demand for IT workers, those with experience can easily find new jobs, thus increasing organizational turnover opportunities (McKnight et al., 2009). However, because IT workers operate outside the normal organization employee / employer contexts, IT worker retention is an issue.

The Bureau of Labor Statistics (BLS) (2010) data shows that in 2010, U.S. organizations replaced nearly one in five IT workers. This high replacement rate has persisted through the economic recessions and inflations of the 2000's to produce an average IT worker tenure of just 4.5 years (BLS, 2012). Moreover, the BLS (2012) data show that IT worker average tenure was only 127 days longer than the entire labor force, which includes the lowest tenures in the BLS data, the Service, Sales, Construction, Transportation, and Arts occupations. Restated, on average, an organization's second or third most expensive resource (BLS, 2010), IT workers, might contribute to the organization just 127 days longer than a low-skilled employee such as a waiter or a cashier might. However, there is another side to the IT worker story.

Viewing the IT worker retention issues through a mirrored lens, we see there are positive outcomes too. Some IT workers stay employed at one organization well beyond the average, which evokes the question, why? Why do some IT workers stay, when professional norms, new opportunities, and overall economic need would accommodate frequent organization change? Moreover, what if employing organizations could convince more IT workers to stay, thereby reducing the direct and indirect costs of high

IT worker turnover. In other words, what if organizations could convince more IT workers to *stick* [1](Heath & Heath, 2007)?

Improving IT worker stickiness would reduce the finical losses caused by missed business opportunities as well as decreasing organization risks associated with the loss of IT workers' tacit knowledge, and reduce the numbers of new IT workers to be hired every year as well as the associated recruiting fees and interview time. Moreover, sticky IT workers might also increase the ten-to-one technology worker payoffs currently suggested by Channel Insider (2012) where for example a $100,000 software developer's salary supports a Million dollars or more in annual revenue. With a goal of improving IT worker stickiness to reduce hiring needs and financial losses, this research asks what could organizations replicate or imitate to increase IT worker tenures, and seeks answers from the best available source, sticky IT workers.

Asking and answering sticky IT worker questions requires a *sticky* definition and contexts. In the modern economic context, stickiness is a Keynesian term that refers to inelastic pricing or an unwillingness to change when market factors suggest change should occur (Mankiw & Romer, 1991). In *The Tipping Point: How Little Things Can Make a Big Difference,* Gladwell (2002) included stickiness as one of three components that create a Tipping Point (a decision to act). Heath and Heath (2007) suggest sticky is not just one thing and it does not apply to one individual; rather, sticky is a collection of attributes that act together to enable an outcome. Combined, these views of stickiness

[1] The terms stick and sticky used throughout this document describe an outcome inspired by *Made to Stick* (Heath & Heath, 2007). The terms used here do not always directly map to the ideas or contexts presented by Heath and Heath (2007). In addition, Heath and Heath (2007) credit *The Tipping Point: How Little Things Can Make a Big Difference* by Malcolm Gladwell (2002) with their concept of stickiness.

form a contextual framework that suggests stickiness is a multi-factor decision to defer change that emerges from direct organization influences or qualities.

Framing the sticky IT worker, a *sticky* IT worker has evaluated all of the direct and indirect influences created by an organization and chosen to remain a member. Restated, the organization qualities (elements, features, processes, and environmental components) have created the contexts and attributes that cause attraction enough for the IT worker to choose the current employee/employer relationship over another, even where markets might suggest otherwise. In other words, the organization's qualities have influenced or *tipped* (Gladwell, 2002) the employment decision toward continued participation (March & Simon, 1958, 1993) and away from change to a new employer, thus creating a *sticky* IT worker.

While the sticky IT worker may exist in some organizations or some sticky IT workers may exist in any organization, not all IT workers stick at every organization. Thus, the suggestion that not all organization qualities (elements, features, processes, and environmental components) create attraction for sticky IT workers; however, if suicide and cigarette smoking can become norms through modifying the surrounding contexts in which they occur (Gladwell, 2002), incorporating the qualities that attract sticky IT workers into the organizations' architecture or design practices seems comprehensible.

Toward discovering and describing the qualities that organizations might replicate to create IT worker attraction and increase stickiness, this research went directly to the source, sticky IT workers, for answers, insights, and contexts. The research studied success (current sticky IT workers) to understand success (what makes IT workers stick) (Heath & Heath, 2013).This positive approach provides new insights into increasing IT

worker stickiness by explicitly focusing on the sticky topic rather than extrapolating or inferring from its opposite (turnover / attrition), as suggested in prior research. Moreover, this research further distinguishes itself from prior research with its focus on the current condition rather than an examination of intent, future states, or prior actions.

As shown in the literature review (Chapter 2), there is a gap in IT worker research. The numbers of peer reviewed articles focused specifically on IT workers in four top academic databases measure in the tens, yet general turnover research articles number in the thousands. These numbers demonstrate a lack of IT worker research specificity as well as the exponentially popular approach to understanding worker stickiness (retention), which has been to ask sample participants why they quit, and then try not to do that (Morrell & Arnold, 2007). Conversely, this research asks IT workers why they stay (stick), and suggests organizations build or act upon these answers instead.

This phenomenological research is not confirmatory, rather it adds to the worker retention literature by asking why IT workers stick with one organization for a long time (at least 1 standard deviation beyond the 4.5 year average). Following the seven step research structure suggested by Creswell (2007) and the four part phenomenological processes suggested by Giorgi (1997), seven Sticky IT worker themes emerged to provide organization leaders and architects insight into the organization qualities that matter most to IT workers who stick. The data discovered and described is the perception and expert opinion based on the participants' experience. The questions asked did not introduce or induce organization components, but rather remained open-ended (Creswell, 2009; Moustakas, 1994; Smith, 2011; van Manen, 1990) and directed toward the IT workers' decisions to stick.

This phenomenology discovers and describes seven themes that capture the qualities (elements, features, processes, and environmental components) that organizations might directly develop or implement in order to tip IT workers' employment decisions. Moreover, the findings presented here provide future researchers seven organizational themes - learning, people, pay, career, opportunity, environment, and organization - for further IT worker stickiness study.

Processes, Outcomes, and Tools

The research employed Snowball sampling to find ten qualified sticky IT workers. Qualifications included a hands-on IT role, a minimum of sixty-two months tenure in the current IT role, with a for-profit organization that employed at least fifty people and separated the IT work roles (identified by BLS codes 15-xxxx) from other work roles. All subjects were initially qualified through e-mail then asked to complete an online pre-qualification survey to verify employment and capture demographic as well as employer data. Nine research subjects passed the pre-qualification process. Of those, two withdrew and one was disqualified later, leaving six sticky IT workers to complete this phenomenological research.

The subjects completed telephone interviews to answer nine research questions. The answers were compiled into a master database (document) segmented by question and separated by subject to capture in one place, the full context of organization qualities that contribute to sticky IT workers. From the full context data, word clusters and supported themes emerged (Giorgi, 1997; Kahneman, 2011). The seven themes that

survived Giorgi's (1997) event and effect separation analysis were ranked based on context and word counts then reflected back to the research subjects at a later date using an online survey to confirm validity, value, and ranking.

Through the validation, value, and ranking processes theme importance shifted, further demonstrating the separation of the phenomenological event from its effect (Giorgi, 1997). The final sticky IT worker theme rankings emerged to be learning, people, pay, career, opportunity, environment, and organization. This prioritized list provides a map of qualities for organization leaders and architects to act on in order to improve increase IT worker retention. Unlike much of the turnover research reviewed in Chapter 2 that suggests as many as 70 things (Ghapanchi & Aurum, 2011) organizations should not do as they work to reduce turnover, this affirmative research provides a mirrored perspective to offer organization leaders and architects seven organization qualities (elements, features, processes, and environmental components) to focus on to increase their IT worker tenures.

This research also offers organization leaders and architects a set of tools, templates, and processes to replicate the research effort within the confines of a single organization to further discover and understand what IT workers value in any organization. By applying the tools and processes here, organization leaders need not wonder if the themes discovered in this research align with their own IT workers' reasons to stay (stick). With a directed effort, supported by the processes described here, organization leaders can create their own uniquely tailored map of sticky IT worker themes.

Chapter 2 – Literature Review

Organizations are working to build a better pipeline of IT/IS workers because in a modern economy, IT work creates value and supports a competitive advantage (Gaylard et al., 2005). Moreover, turnover among IT workers costs more than other worker types due to the high indirect costs of missed technology advances, lost tacit knowledge, and project delays (Ghapanchi & Aurum, 2011). Von Hagel and Miller (2011) and Gaylard et al. (2005) also suggest replacement time, hiring efforts, and recruiter commissions create high direct turnover costs ranging from 50 to 200 percent of an IT/IS workers' salary. Applied to the U.S. economy, these direct replacement costs range from 22 to 89 Billion dollars annually (BLS, 2010). Given the direct and indirect costs of IT worker turnover, finding ways to encourage IT workers to stick in order to reduce the needs for new or bigger IT worker hiring pools or pipelines, is a worthwhile effort.

Frequently, worker and organization research intersect at the turnover event (when a worker departs) (Lee, Mitchell, Holtom, McDaniel, & Hill, 1999; Mitchell, Holtom, Lee, Sablynski, & Erez, 2001). However, worker departures are complex and answers to questions regarding turnover (a leaving decision) may differ from answers to questions regarding staying (a sticking decision) (Mak & Sockel, 2001). If for no other reason than they represent two different moments in workers' thinking and acting where a mental line has been crossed, or as Gladwell (2002) defines the moment, a tipping point is reached. Thus, asking why stick with an organization shifts the IT workers' thinking to

a pre-tipping point time or condition in order discover what makes an organization sticky. This (why stay) focus captures the unique perspective and intent of this phenomenological study.

The following literature review presents 1. an understanding of IT workers as a special class of worker, 2. describes IT workers' employment patterns and perspectives, 3. reviews the evolution of employee turnover research, including IT workers, and 4. supports a research shift toward the mirrored employment condition, IT Worker stickiness (IT workers choosing to stay).

Throughout this document, including the literature review, some terms are used interchangeably to accommodate specific wording from various supporting authors or to maintain grammatical contexts. The words sticky and stickiness will designate a worker with a current tenure of at least one standard deviation beyond the average (4.5 years) or the organization that employs the sticky worker. The terms attrition, departure, and turnover describe voluntary employment termination by the employee (worker).The words retention and stick describe outcomes that increase employee tenure; they convince the worker to keep working for the organization. The words employee and worker designate the individual or individuals engaged in production efforts for an employing organization. Lastly, the terms IT (Information Technology) and IS (Information Systems), designate a narrow worker classification defined by the Information Technology Occupations Standard Occupation job codes 15-xxxx (BLS, 2012).

Understanding IT Workers as a Special Class

IT workers are different from other workers as demonstrated by the issues studied since the emergence of the Information Technology employment category (Armstrong et al., 2007). Moreover, Balfour (1997) and Coombs (2009) both echo a popular belief that IT professionals are a different class of worker and therefore worthy of special study. Armstrong et al. (2007) state, "Studies since the late 1970s have suggested that information technology (IT) professionals exhibit characteristics that differ from those in other professions" (p.142). Specifically, IT professionals are "more ambitious, logical, and conservative... [they possess] unique attitudes, interests, sense of identity, and work consciousness" (Armstrong et al., 2007, p.142). Niederman, Sumner, & Maertz (2007) suggest IT worker differences also include their roles as "corporate repositories of explicit and tacit knowledge regarding organizational systems, as well as keepers of these systems for other knowledge workers" (p.332). Thus, IT workers enable the what, why, and how an organization does things.

Researchers (e.g., Carayon, Schoepke, Hoonakker, Haims, & Brunette, 2006; Diakun & Phillips, 2001; Lee, 2000; Niederman et al., 2007; Rouse, 2001; Thatcher, Stepina, & Boyle, 2002) have applied specific as well as general theories of voluntary turnover and retention to this unique worker group in order to understand why IT workers' operate outside of traditional employment models. For example, Rouse (2001) applied three employee turnover models from Steers and Mowday (1981); Lee and Mitchell (1994); and Mobley (1977) to IT workers and concluded, "The group of rational [turnover] models does not adequately represent this construct in regards to highly sought

after employees such as IT professionals" (p.289). In other words, IT workers do not fit traditional worker turnover models.

Further supporting IT worker uniqueness, Adams and Demaiter (2007) conclude the factors that identify those who choose IT work may not align with traditional organizations. Because IT workers are more ambitious and logical than others, the organizations that align with IT workers are flexible, innovative, less hierarchical or formal, and do not support traditional power bureaucracies. Moreover, IT workers possess a unique sense of identity and work attitudes (Adams & Demaiter, 2007). IT workers are not repelled by work environment that often includes "long hours, late nights, after-hour meetings, on-call duty" (Armstrong et al., 2007, p.142).

IT workers represent knowledge workers at the leading edge where knowledge is continually changing (Lee & Maurer, 1997). These "high technology workers present unique challenges when it comes to rewards, partly because of their own unique nature and partly because of the unique context in which they work" (Medcof & Rumpel, 2007, p.59). Extending IT workers' environmental and structural uniqueness, Morrissey (2011) suggests that the IT worker of today is not the closet-hidden programmer of the Y2K era, rather IT workers today are "the people who can create change" (p.14) and guide organizations toward new innovative products (revenue) and processes (cost savings). Beyond the required IT skills, these unique workers also understand business, customers, and the larger organization contexts of their highly valued talents (Morrissey, 2011).

IT workers are strategic assets required by nearly every type of organization today. These informed IT workers are required to "enhance, to optimize, to leverage the [technology] platform you're putting into place" (Morrissey, 2011, p.14). This

combination of uniqueness and ubiquity along with the emergence of information technologies as business enablers separates IT workers from all others and contributes to the need for special study and specific IT worker research.

IT Work and Workers Vary by Market

Because "the IT job market encompasses more than just technology companies" (Ranii, 2012, p.1E), "The issue of retention and turnover of IT workers is a problem for both IT and non-IT firms" (Carayon et al., 2006, p.381). While IT workers in some markets seem to have settled in (reduced job changing frequency) since the IT worker crisis of the late 1990s (Morrissey, 2011), many organizations continue to struggle to retain IT workers in certain regions (e.g. North Carolina) (Ranii, 2012). Ranii (2012) states, "the persistently high unemployment rate, it turns out, is a relative thing...the overall market for information technology jobs is relatively healthy, and some sectors are red-hot" (p.1E). Though the January 2012 national unemployment rate was 8.3 percent, the computer and mathematical occupations- those that include IT workers according to BLS.gov- unemployment rate was less than half, measuring just 4.1 percent (Ranii, 2012).

Gabe and Abel (2011) used similar data from the U.S. Bureau of Labor Statistics (BLS) to assess the accumulation of knowledge workers into clusters based on the type of work and the geographic locale. Gabe and Abel (2011) found that 14 of the 21 work similar clusters (e.g., engineers and IT workers) benefited from working in geographies where others worked in the same profession. This "agglomeration" (Gabe & Abel, 2011,

p.1353) increased tacit knowledge sharing to enhance the information awareness of all those involved or interested and those of similar minds (Gabe & Abel, 2011). Moreover, the agglomeration of similar innovative knowledge workers increased incomes "by about 14 percent for Information technology [workers]" (Gabe & Abel, 2011, p.1362) and created more opportunity for worker turnover. The agglomeration scale determined by Gabe & Abel (2011) suggests a doubling in the skilled population created an "increase in average earnings within a cluster" (p.1363) ranging up to 9.2 percent. At least one third of work similar clusters, including IT workers, directly benefit from knowledge work and geographic agglomeration. Thus, working in IT in a large metropolitan area provides knowledge gained through like minded interaction, higher incomes, and more work opportunities without the expense or trouble of relocating.

U.S. Government employees working in Washington D.C. provide a specific example of knowledge work and IT worker agglomeration. Von Hagel and Miller (2011) report that the costs to replace a departing government IT worker include 50% to 150% of the worker's salary to hire a new worker plus productivity losses ranging from 200,000 to 250,000 dollars. Moreover, Von Hagel and Miller (2011) report a 21% annual IT worker attrition rate; witch translates into an average IT worker tenure of just 4.76 years, a number just below the 4.80 year median reported by BLS IT workers in 2010 (Appendix G).

Because the work and the worker are movable, in the mobile and connected American society all organizations are affected by IT work hot spots (Ranii, 2012). This *movable squared* work function creates problems for organizations where the value of IT workers becomes overweighed by any-work anywhere (2x) variables. This 2x emphasis –

movable squared – describes the current state of IT worker retention issues, in the overall market where IT salaries equal the legal profession (BLS, 2010) and turnover continues to impede organization growth. Thus, exceptions to the market conditions affecting all IT workers would be organizations that retain IT workers for more than 4.80 years (against the current trend).

Recessions have limited effects on IT workers.

Lee (2000) describes the economic qualifiers affecting a worker's leave or stay decision by stating, "employees who want to quit may only be able to do so when alternative jobs are available" (p.104). BLS data from the period 2000-2012 support Lee's (2000) job availability suggestion by showing changes in tenure and employee turnover habits at the end of an economic recession period (e.g., 2002 and 2010) (Boon, 2008; Klemmer, 2010; The National Bureau of Economic Research, 2010).

For example, as unemployment increased during the long recession 2007-2009 the ratio of unemployed persons per job opening increased with "ratios ranging between 1.4 and 1.6 unemployed persons per job opening to a high of 6.2 unemployed persons per job opening in November 2009" (Klemmer, 2010, p.1). This shift encouraged workers to stay with their employers throughout the period thus reducing voluntary quits, affecting turnover decisions, and reducing non-forced attrition measures (Bauer Klemmer & Lazaneo, 2010). However, the impact on IT workers quit decisions was not as large as one might expect with median tenure increasing only one-tenth of one year (36 days) for the 2002 period and three-tenths of one year (108 days) during the 2010 period (Appendix G).

Morrissey (2011) discovered that while other parts of the economy have suffered since 2007, IT worker hiring has continued to increase with some departments adding as much as 66% new staff from 2008 to 2011 in order to get ahead of the talent demands and shrinking resource pool. Now that the talent pool is low, executives and boards "have a duty to protect their IT investment in not only the hardware and software, but also the efforts of management to find and keep the skilled professionals required to power [them]" by executing a strategy "to circle the wagons and protect the best [IT] people you've got" (Morrissey, 2011, p.16).

Janz and Nichols (2010) attribute the increasing IT worker demand during the recent U.S. economic recessions to new consumer technologies such as mobile computing and the continued growth of secure computing needs as well as information quality assurance and Internet capabilities worldwide. Janz and Nichols (2010) also suggest the decreasing IT worker supply is linked to decreasing IT course enrollments at universities and "the four-year (or more) delay necessary to complete an undergraduate degree" (p.10) after a job category gains or regains interest. This long lag time reacted to the end of Y2K and the 2007 economic crisis in the same way. Thus, today and for the foreseeable future, "demand for IT jobs has indeed outstripped the supply of IT workers, and that ... gap will continue to get worse" (Janz & Nichols, 2010, p.11).

To summarize the research thus far, IT workers are a unique class of worker and have been viewed as such since the 1970s (Armstrong et al., 2007; Balfour, 1997; Coombs, 2009). IT workers appear to function outside of the average employment and turnover models due to their strategic value (Morrissey, 2011). Nearly every organization needs IT workers (Ranii, 2012). As such, IT workers enjoy organization and regional

mobility which leads to IT talent and skill clusters (agglomeration) (Gabe & Abel, 2011). The skill clusters enable opportunities for frequent job changes without the expense or life disruptions caused by relocating to another geography while also enabling IT workers to gain highly sought after skills by simply participating in the existing cluster (Gabe & Abel, 2011). Finally, developing new skills adds to the strategic value of IT workers, earning them higher salaries and making them less susceptible to the effects of economic recession (Janz & Nichols, 2010; Morrissey, 2011). In a word, IT workers are different. Their uniqueness, strategic organization value, and apparent ability to operate at the edges of accepted organization practices, helps make IT workers worthy of continued research.

The Employee Turnover Research Spectrum

Until the early 1990s voluntary turnover theory was derivative of March and Simon's (1958) "perceived ease and desirability of leaving one's job" (Mitchell et al., 2001, p.1102), where ease represents job alternatives and desirability represents the worker's attitude. These two factors combined at a point in time through coincidence or opportunity to create a job transition event. Thus, a proper label for one end of the turnover research spectrum might be *worker choice*. Extending worker choice, Lee and Mitchell (1994) introduced their Unfolding Model of Voluntary Employee Turnover to describe employee turnover as "a complex process whereby individuals assess their feelings, personal situation, and work environment and, over time, make decisions about staying or leaving an organization" (p.84).

Lee and Mitchell's (1994) unfolding model describes a process of positive, neutral, or negative shocks leading to one of four decision paths that determine whether the employee stays or leaves an organization. Leaving decisions may result from a "tight linkage" (Lee & Mitchell, 1994, p.67) between perceived mobility (job offers) and actual mobility for highly sought employees such as Information Technology workers. In these instances, utility and profitability comparisons play out as the employee maximizes his/her employment preferences.

However, the shocks themselves do not determine the stay or go outcomes because all employees are human and as such react with "unique and personal characteristics and experiences" (Lee & Mitchell, 1994, p.61) to value the shock event higher or lower and choose to act (leave) or not to act (stay) based on the personal value of an event. This separation between events (shocks) and outcomes (employees choosing to stay or leave) furthered new thinking directions for turnover research and introduced the stay decision as a topic worth study.

Lee and Mitchell (1994) suggest that an employee's decision to stay with the organization does not imply there are no shocks to evaluate, rather that the evaluation ends with a stay decision. Shocks, "prompt cognitive deliberations about a person's job" (Lee & Mitchell, 1994, p.75), which may result in job or organization affirmations, thus some shocks can result in staying and a deeper commitment to the organization. That is, even shocks can cause the worker to tip (Gladwell, 2002) toward a sticky choice. Moreover, employees may stay with the organization for other, more utilitarian, reasons including the daily habits of living and "daily routine of work, home, and family demands" (Lee & Mitchell, 1994, p.71). These two suggestions - that shocks may affirm

or deepen worker commitment and that external factors such as home or family routines affect workers' employment choices- identify the decision to *stick* as a separate and unique component of employee turnover and organization research.

Lee et al. (1999) closed their 1990's research efforts by suggesting "the combinations of psychological events and behaviors" contributing to employee turnover are "far more complex," "variable," and "content" related than typically suggested by turnover theories (p.452). Their research also supports the idea that workers leave jobs where they are satisfied; "many people leave who are relatively satisfied with their jobs" (Lee et al., 1999, p.101). Moreover, "different occupational groups have different patterns of (or paths for) leaving their jobs" (Lee et al., 1999, p.457). Thus, an accountant or nurse may leave a job for reasons that an IT worker would not.

Moving into the 2000's era, Mitchell, Holtom, and Lee (2001) introduced "job embeddedness," a construct "used to summarize a broad constellation of factors influencing retention" (Mitchell et al., 2001, p.102), as a consolidated view of factors that might influence an employees' staying decision. Job embeddedness explores the high cost of leaving a job from a personal and professional view including factors such as church membership, children's' school preferences, pension, sabbatical tenure, and other accrued benefits.

Mitchell et al. (2001) extended the job embeddedness construct to include three retention factors including non-work factors, other organization-focused predictors, and turnover outcomes. Job embeddedness provides a "focus on the accumulated, generally nonaffective, reasons why an employee would not leave a job" (Mitchell et al., 2001, p.1108). These embedding concepts are seen as "a heterogeneous totality of forces, many

of which may be independent" (Mitchell et al., 2001, p.1116), but work together to keep a person on the job (Mitchell et al., 2001).

Mitchell et al.'s (2001) research suggests "that people who are embedded in their jobs have less intent to leave and do not leave as readily as those who are not embedded" (p.1116). Other retention factors beyond job embeddedness may include "job satisfaction, organizational commitment, job search, and perceived alternatives" (Mitchell et al., 2001, p.1117).

Extending the "less intent to leave" suggestions of Mitchell et al. (2001, p.116), Thatcher et al.'s (2002) Organization Commitment (OC) research into workers' long-term involvement with a single organization suggests that satisfaction with the work itself and the work environment matter more to workers than pay or the availability of alternate jobs.

Here, qualities (elements, features, processes, and environmental components) that the organization can directly influence emerge to identify the other end of the turnover research spectrum, *organization control*. To be clear, the organization is not controlling the worker or her/his decision to leave or stay, rather the organization is controlling the qualities (elements, features, processes, and environmental components) that contribute to the worker's leave or stay decision. While perceived ease, unfolding, job embeddedness, and OC research all address workers' employment decisions they also operate from a traditional employee turnover perspective that seeks the reasons employees decide to leave, then suggests organizations don't do that. Moreover, none of the theories specifically address IT workers.

Adjusting employee turnover research to fit IT workers.

To understand how IT workers make leave or stay decisions, Niederman et al. (2007) applied Lee and Mitchell's (1994) original Unfolding Model to IT workers. However, the original model proved insufficient to support the numbers of paths and thought processes IT workers employ when making a leave or stay (turnover) decision. To capture IT worker leave or stay decision processes, Niederman et al. (2007) expanded Lee and Mitchell's (1994) five quit paths to eight, a 60% increase. Then, testing the expanded theory, Niederman et al. (2007) found 88% of respondents followed quit paths "not among the original five theorized paths" (p.331). Thus, supporting a the need to research IT workers as a unique group, separate and apart from the collection of all workers and suggesting that leave or stay evaluation processes may be different for IT workers.

To determine the impacts of organization practices on IT/IS worker satisfaction and their leave or stay decisions, Mak and Sockel (2001) assessed how the perception of management policies affected burnout, loyalty, and turnover intent.

Mak and Sockel (2001) determined that:

- "job satisfaction is a key factor for employee motivation"
- "perceptions of supervisory support could increase satisfaction and motivation, reducing stress and improving job performance"
- "management support has a significant impact on employee motivation"
- "management actions and style can play a key aspect relative to the motivation and retention of IS employees" (p.268).

Mak and Sockel (2001) also suggest a high correlation between IT/IS worker motivation and decreased turnover intent. Their motivation contributors include job satisfaction as suggested by Thatcher et al. (2002) as well as long-term career development as suggested by Mitchell et al. (2001). Thus, Mak and Sockel (2001) conclude that companies should adopt career development policies, training workshops and seminars, and offer incentives for learning new technologies to decrease IT/IS employee turnover.

One final observation from Mak and Sockel (2001) is that "45 percent of the respondents indicated they would work for less money to learn new technology" (p.269). Thus supporting Thatcher et al.'s (2002) suggestion that organization qualities including the work environment matters more than the pay; and further supporting *organization control* as the other end of the turnover spectrum.

With IT worker annual turnover moving toward 40%, Rouse (2001) compared rational and instinctual models of voluntary turnover as applied to IT workers. The rational model tests job-embeddedness, satisfaction, motivation, and environmental turnover factors to understand how "the subject rationally follows a linear progression towards turnover" (p.282). The instinctual model suggests that single shock events (Lee & Mitchell, 1994) cause employees who are otherwise happy to seek new employment.

Rouse (2001) analyzed turnover contributors such as direct and indirect job changing costs including loss of seniority or vested benefits. However, since these are things IT workers do not enjoy in the current U.S. employment practices where unions are weak and 401(k)s replaced pensions nearly thirty years ago, these factors were found to have little influence on the leave or stay decision (Rouse, 2001). Here again, research

supports IT workers' unique perspectives of job security, compensation, and worker representation.

Further, exploring these unique workers, Rouse (2001) examined decision models of intent to leave and intent to search based on the assumption that each of these is preceded by employee dissatisfaction. However, in the case of IT workers, the assumption is incorrect. IT workers often receive unsolicited offers of new employment (Rouse, 2001). Therefore, intent is not a necessary initiator in the voluntary leave process (Lee, 1996). Rouse (2001) concludes that," the group of rational models does not adequately represent this construct [voluntary turnover] in regards to highly sought after employees such as IT professionals" (p.289).

Thus, the rational model does not support IT worker separation practices. Rather, the instinctual model more closely aligns with IT worker separation practices (Rouse, 2001). Moreover, IT workers switching jobs are "confident that in the event of failure, many other traditional jobs are available" (Rouse, 2001, p.288). This suggests that the opportunity cost is low for IT workers to seek organizations that offer sought after qualities including more training, better opportunities or new challenges, and more competent bosses. Rouse's (2001) findings do not support leave or stay decisions based on the accumulated experiences suggested by the organization control end of the turnover spectrum. Rather, Rouse's (2001) findings swing to the other end of the turnover spectrum, worker choice.

Recognizing IT workers as a special type, Slaughter and Ang (2002) divided IT workers into two Internal Labor Market (ILM) categories, industrial and craft, in order to discover how organizations applying different employment structures to each category

influence IT worker turnover rates. While industrial structures use processes such as limited entry points and worker training to reward and create loyalty as well as organization stability, craft structures reward leading edge skills brought into the organization through many entry points, worker and employment flexibility or mobility, as well as minimal cost structures to benefit from the next new thing. That is, industrial IT workers develop and maintain organization specific knowledge to combine with dated or conceptual knowledge of specific IT skills. While craft IT workers develop and maintain generic or conceptual knowledge about organizations and specific up-to-date knowledge in their skilled function, their craft.

Slaughter and Ang's (2002) research findings show turnover for the industrial IT workers ranged from 5.0 to 11.6% while craft IT worker turnover ranged from 13.6 to 23.0%, thus organization efforts to apply industrial worker structures to IT roles appear to reduce turnover by 8.6% to 18.0%. Moreover, IT worker tenure increased from 3.5 to 6.8 years in organizations applying industrial structures. Slaughter and Ang (2002) state, "closing ports of entry, providing extensive training, constructing elaborate internal job ladders and concentrating on internal promotions... where IT is a critical function [, organizations] have relatively low turnover rates (13.0%) and high expected tenure (6.2years)" (p.141). Slaughter and Ang (2002) further suggest turnover is not just a personal or individual act, but rather it arises from "organizational, industry, and market factors rather than ...individual perceptions" (p.142) and as such, the organization can directly influence worker turnover and tenure. Here, organization qualities (elements, features, processes, and environmental components) gain further support and continue to indentify sticky makers along the turnover research spectrum.

Gaylard et al. (2005) further support Slaughter and Ang's (2002) suggestions that the organization can influence the leave or stay decision. In a survey of more than 300 IT workers, Gaylard et al. (2005) evaluated organization qualities and worker perspectives to conclude that three intertwined organization factors - a liberated and empowered culture, equity and enablement for high performance, as well as an effective and interactive communication channel - contribute to and provide support for IT workers choosing to stick.

Finally, Von Hagel and Miller (2011) applied Mitchell et al.'s (2001) refined Unfolding Model of voluntary turnover as well as Mitchell and Lee's (2001) theory of job-embeddedness to evaluate IT workers in stable organizations. Spanning the turnover research spectrum, Von Hagel and Miller's (2011) phenomenological research combined worker choice with organization controls to suggest three components (link, fit, and sacrifice) combine to support organization attachment as another factor in the leave or stay decision. Thus, Von Hagel and Miller (2011) further demonstrate the organizations' influence on the IT workers' decision to stick.

Existing literature suggests the decision to leave or stay (stick) exists on a spectrum ranging from fortunate opportunity in the March and Simon (1958) era, to individual choice based on an accumulation of inputs for Mitchell et al. (2001), to a collection of organization qualities including job structures (craft or industrial), cultures, performance, and communication for Slaughter and Ang (2002), Gaylard et al. (2005), Niederman et al. (2007), and Von Hagel and Miller (2011). Understanding the leave or stay decision and identifying the qualities that IT workers value when making that

decision is the focus of this research. The next section highlights what is known regarding IT worker leave or stay decisions.

IT worker leave or stay decision research.

Gaylard et al.'s (2005) research supports the organization control side of the turnover research spectrum by suggesting the organization can influence the IT worker's leave or stay decision through seven work-life factors including job satisfaction, financial reward, employability and personal growth, the job itself, the employee, relationship with the boss, and the organizational culture and environment.

Extending the organization's influence over the IT worker's leave or stay decision, Armstrong et al. (2007) studied twelve IT worker turnover factors to suggest that those evaluated as most central (centrality scores between 1.015 and 0.752) to the decision to leave include barriers to promotion, turnover, managing family, work stress, work schedule flexibility, and job qualities. Of the top six decision to leave factors, only managing family was beyond the organizations' direct control.

Ghapanchi and Aurum (2011) further support organization qualities can directly influence IT worker turnover and suggest the top reasons IT workers leave an organization include role ambiguity (21%) and role conflict (19%). Addressing these organization qualities could reduce IT worker turnover by 40% (21 + 19). Ghapanchi and Aurum's (2011) second group of reasons IT workers leave includes tenure (15%), autonomy, (14%), age (13%), education (11%), and salary (11%). While many components of this dissatisfaction group are beyond the organization's control, the organization can directly control 25% (autonomy 14% + salary 11%). Ghapanchi and

Aurum's (2011) tertiary grouping includes factors such as perceived workload (8%), gender (8%), and the remaining 5 frequently cited antecedents. Thus, through better organization control including IT role and job design, the employing organizations might directly influence 65% of IT worker turnover by addressing only four of the 14 turnover antecedents (spectrum markers).

Organization architects, management, and the leadership can directly control each of these turnover spectrum markers. Mathematically this represents a 29% (4 divided by 14) effort for a 65% (21+19+14+11) reduction in the decision to leave, or more than a 2 to 1 payoff. Moreover, only one of the four elements (salary) includes direct costs to the organization, therefore organizations unable to increase expenses might still reduce turnover 54% (65% total – 11% salary) by addressing only three of the turnover spectrum markers.

When McKnight et al. (2009) evaluated "whether workplace factors affected IT turnover intention as much as did job characteristics" (p.281), they discovered "IT workers are often more loyal to their profession than they are to their firm" (p.281) and while both workplace and job characteristics impact IT worker turnover intention, "workplace characteristics had the greatest impact" (p.281). McKnight et al.'s (2009) research finding that the feel of the work environment matters more than the actual work tasks, also aligns with the tacit learning preferences of IT workers suggested by Adams and Demaiter (2008); Rong and Grover (2009); and Mak and Sockel (2001). Moreover, a lack of trust in senior management, yet another controllable organization quality, emerged as a key turnover factor; ahead of other factors including work exhaustion (McKnight et al., 2009).

Rong and Grover (2009) suggest other organization turnover variables include work and knowledge ownership responsibilities. IT workers combine career competency, difficult knowledge renewal challenges, and tolerance for ambiguity, with both explicit and tacit knowledge acquisition opportunities in their job satisfaction self-assessments. Specifically, IT workers want to own their knowledge through tacit experiences rather than merely use (apply) explicit knowledge (Rong & Grover, 2009). This suggests that organizations providing the intrinsic and extrinsic knowledge acquisition opportunities sought by IT workers, "benefit not only by having a better quality workforce, but also by having employees who are broadly satisfied with their jobs" (Rong & Grover, 2009, p.384). Moreover, while "IT workers have a high need for challenging work" (Allen, Armstrong, Reid, & Riemenschneider, 2008, p.567); they also require some measure of organization support.

To evaluate organization support as a turnover variable, Allen et al. (2008) sampled 297 State IT workers using a 145 question online questionnaire to investigate how IT workers' Perceived Organization Support (POS) influences their turnover intentions. The authors suggest a link between POS, voluntary turnover or retention decisions, increased job attendance, and objective measures of job performance. POS factors studied include a challenging job, task variety, autonomy, perceived workload, work exhaustion, role conflict, ambiguity, pay-for-performance, and providing mentoring opportunities. These factors suggest a "reciprocal exchange relationship that reflects relative dependence and extends beyond a formal contract" (Allen e al., 2008, p.556). In other words, a work contract cannot contain the organization qualities that lead to a long-term employee employer relationship.

Allen et al. (2008) also found five significant variables that represent 62% of the variability in IT worker POS including "role ambiguity ($b = 0.25$, $p < 0.01$), career mentoring ($b = 0.34$, $p < 0.001$), role conflict ($b = 0.22$, $p < 0.01$), work exhaustion ($b = 0.20$, $p < 0.05$), and pay-for-performance ($b = 0.18$ $p < 0.05$)" (p.560). The numbers suggest that IT workers need challenging work and a manageable workload. Together these factors explained 30% of the variance in POS. IT workers suffering from work exhaustion, role ambiguity, and role conflict further explain 24% of the variance in POS. Finally, IT worker "career mentoring emerged as especially important for the POS... explaining an additional12% of the variance" (Allen e al., 2008, p.561). Combined, these organization qualities explain 62% of IT worker POS.

If employee perceptions of the organization lead to leave decisions or stay decisions, then organization architects, leaders, and managers can control or influence the perception variables through better work environment design. According to Allen et al. (2008) "POS is influenced substantially by management's actions that employees perceive as being voluntary rather than mandated by external entities or environmental conditions" (p.557). This statement captures the bottom line of Allen et al.'s (2008) research, the general trend of the employee turnover research through the 2000's, and the direction of this research; that management and leadership actions matter to employees and contribute to the qualities (elements, features, processes, and environmental components) that make an organization sticky for IT workers.

To summarize the evolution of employee turnover research presented here, Table 1 provides a chronological map of authors and their research contributions and Table 2 provides a graphic representation of the employee turnover research spectrum. Moreover,

Table 2 captures an identifiable transition point between worker choice and organization control by listing Slaughter and Ang's (2002) work on both sides of the spectrum. Slaughter and Ang (2002) suggest that worker *type* determines the employees' leave or stay evaluation processes, where mobile type workers act to enhance personal skills through leaving and craft type workers act to stay based on management and organization policies.

Table 1

Evolving Turnover and IT Worker Research Directions Summary

W/O	Year	Author(s)	Turnover Findings and Gaps
W	1958	March and Simon	Perceived ease and desirability of leaving one's job lead to turnover. However, employee choice is not considered.
W	1994	Lee and Mitchell	Develop Unfolding Model of Voluntary Employee Turnover theory. Model does not apply to IT workers.
W	1999	Lee, Mitchell, Holtom, McDaniel, and Hill	Turnover is complex and workers leave jobs even when they are happy. Based on Accountant turnover.
O	2001	Mitchell, Holtom, and Lee	Job Embeddedness theory; non-work factors (e.g., family, community) create attachments that alter turnover thinking. Not applied to IT workers.
O	2001	Mak and Sockel	IT/IS workers turnover intent decreases with improved job satisfaction and management support. Beyond turnover but not staying focused.
W	2001	Rouse	Social pressures, organization fit, and unsolicited job offers influence IT worker turnover. Research focused on turnover.
O	2001	Mitchell, Holtom, Lee, Sablynski, and Erez	Job embeddedness includes non-work factors, other organization-focused predictors, and turnover outcomes, to focus the accumulated reasons why an employee would not leave a job. Not applied to IT workers.
O	2002	Thatcher, Stepina, and Boyle	The work itself and the work environment matter more to IT workers.
W/O	2002	Slaughter and Ang	Defined two different IT worker views of work, organization specific (industrial / loyal) or skill specific (craft / mobile). Focused on limiting turnover.

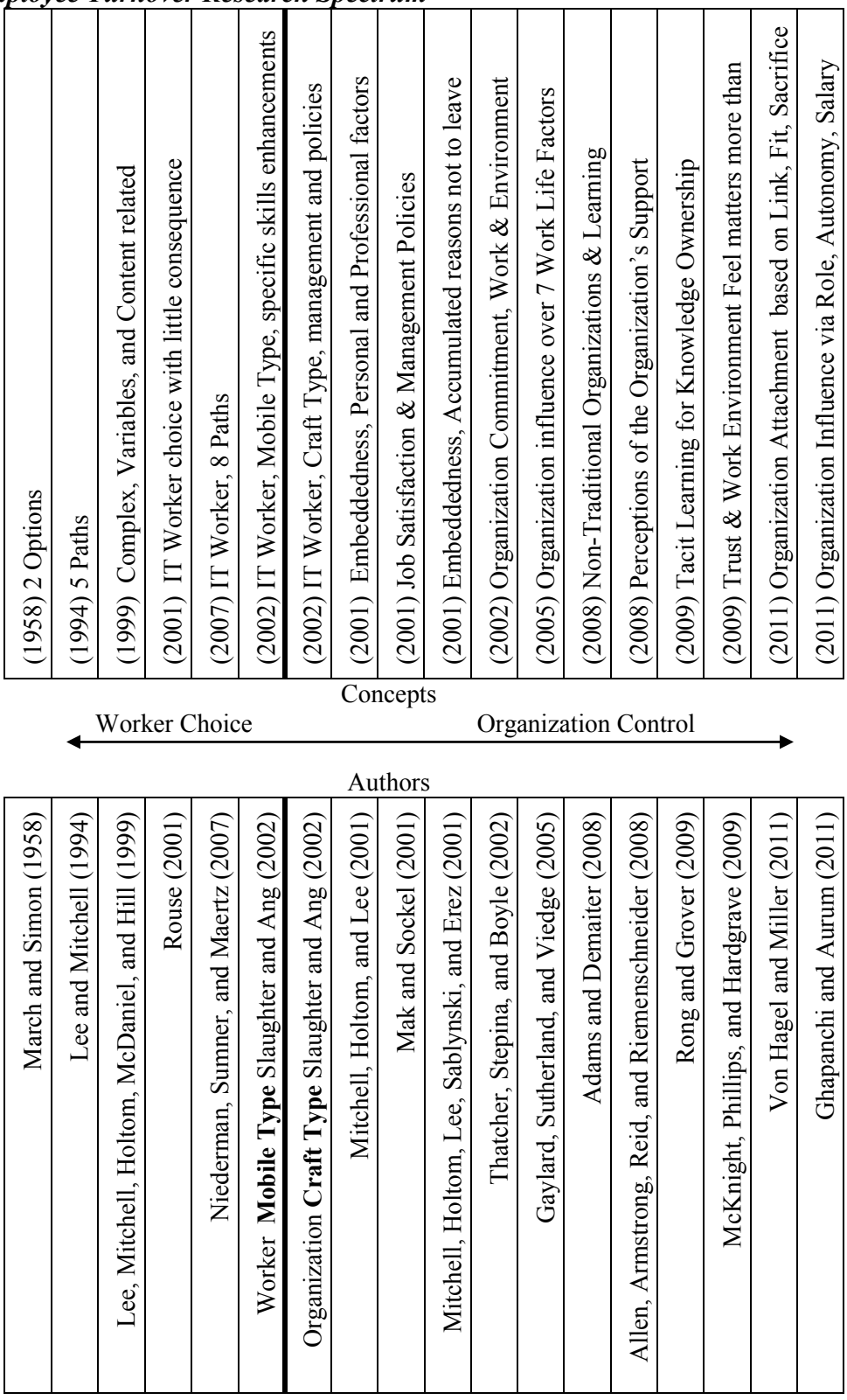
Evolving Turnover and IT Worker Research Directions Summary (Cont'd)

O	2005	Gaylard, Sutherland, and Viedge	Empowerment, equity, communication, each a manageable organization quality, directly influence IT worker turnover. Beyond turnover but not staying focused.
W	2007	Niederman, Sumner, and Maertz	Opportunity awareness and IT workers' employment options.
O	2008	Adams and Demaiter	Extend work context into the workers' personal sphere to ask if personal networks contribute to frequent IT job changes. Turnover focused.
O	2008	Allen, Armstrong, Reid, and Riemenschneider	IT workers seek challenging work in organizations that address support for role conflict and workload management. *Organizations control 62%* of these variables. Perceived Organization Support (POS). Beyond turnover but not staying focused.
O	2009	McKnight, Phillips, and Hardgrave	IT workers are loyal to their profession but act to stay with a supporting organization. The work environment maters more than the work itself. Seeking to reduce turnover.
O	2009	Rong and Grover	IT workers are more satisfied when new knowledge acquisition and application opportunities are part of the work. Turnover component (e.g. pay) focused.
O	2011	Von Hagel and Miller	Organization attachment (fit and sacrifice) influence IT worker turnover. Environment's impacts on turnover.
O	2011	Ghapanchi and Aurum	Organization environments and structures can freely (without adding organization costs) *alter 54%* of the reasons IT workers leave. Turnover focused.

* W / O column identifies Worker choice or Organization control side of turnover

Table 2.

Employee Turnover Research Spectrum



Less is Known About IT Workers

While prior IT employee research levels are greater than zero, as demonstrated by the IT worker section above, prior organization and worker research has discovered much more about the conditions that create turnover for non-IT employees rather than what makes this special worker class stay (stick). Many turnover discoveries have not included IT workers in the research sample as demonstrated by the proportionally low number of peer-reviewed articles across four major research databases (Table 3) found using keywords Information Systems or Technology paired with Employee or Worker. For example, on September 18, 2012 and September 21, 2012 the Academic Search Premier database listed only 43 peer-reviewed results matching the search "Information Technology Employee." However adding the word "Turnover" to the search produced 4,194 peer-reviewed results (Figure 1). Thus, there were 4,151 articles written about the subject turnover, of which no more than 43 included Information Technology Employees. These proportionally low numbers of published research articles support the need for further IT employment research.

Table 3.

Peer Reviewed Keyword Search Results

	Academic Search Premier	**Business Source Complete**	**Computer Source**	**Vocational and Career Collection**
Information Technology Employee	43	176	24	12
Information Technology Worker	85	143	32	5
Information Systems Worker	15	26	9	481
Information Systems Employee	26	88	19	4

Note. Search Dates – September 18 and 21, 2012

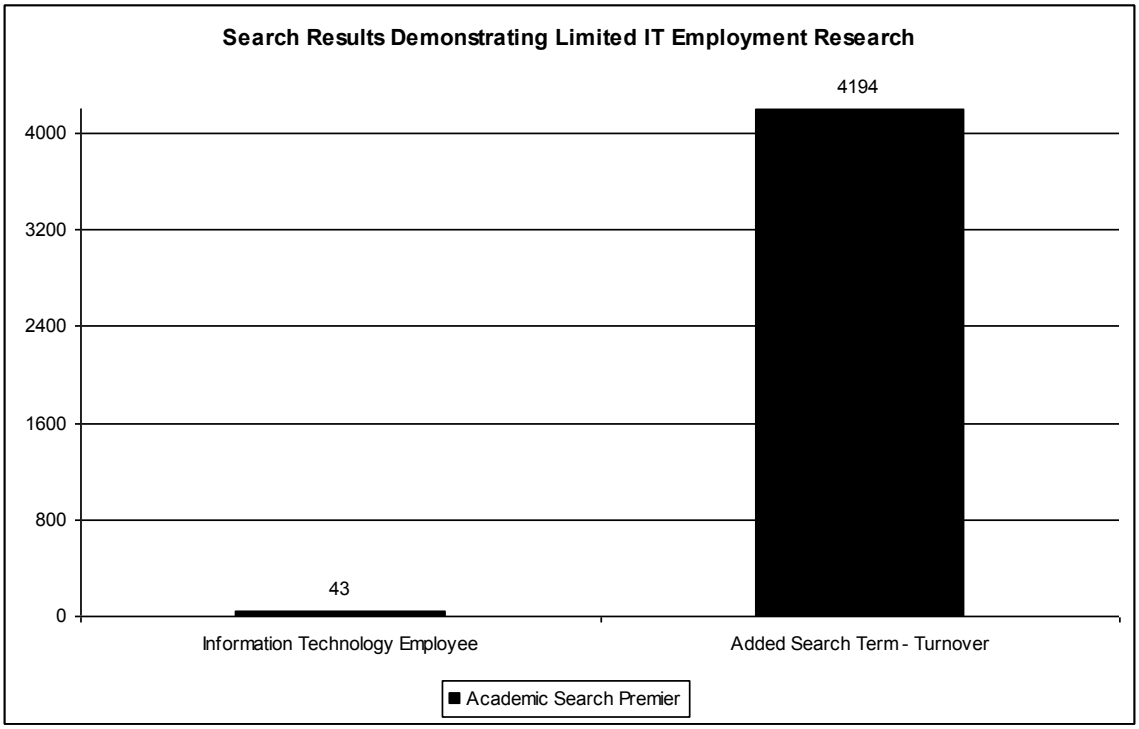


Figure 1. **Exponential Search Results Showing Limited IT Worker Research**
Note. Search Dates – September 18 and 21, 2012

Moreover, much of the limited IT worker employment research has focused on understanding IT employee turnover as way of helping organization avoid one act or one condition that causes this negative employment decision (turnover). And where multiple factors are studied including worker choice, shocks and paths, environments, or individual perceptions, the research continued to focus on the workers' decision to quit. However, the mirrored or flipside question (what conditions create a sticky IT worker) has not been studied as deeply.

Perhaps there is an assumption that by avoiding the things that lead to quitting, organizations automatically increase IT worker stickiness (staying). Such polar thinking may be appropriate where choices are binary, one or zero, off or on, but may not apply to the contexts of human actions and interactions within organization (Lee & Maurer, 1997;

Slaughter & Ang, 2002). Perhaps a more considered understanding of worker turnover versus sticking research should align with our understanding of rich or poor and all of the levels in-between.

Only known answers are written (Husserl & Carr, 1970; Moustakas, 1994). In discovering answers to the question "why stick," this research seeks new (unwritten) answers to the phenomena of IT worker stickiness. Few researchers have ventured into IT worker stickiness, many have studied employee turnover and some have studied IT worker turnover as shown in Table 1. By focusing on positive side of the IT worker employment choice, their decision to stick, this research fills gaps in the research created by the exclusion of IT workers as well as gaps created by the popular employment research focus, learning more about turnover as a way to increase retention.

Lastly, this research also contributes to the efforts of those who have at least considered the IT worker stickiness (staying) phenomenon in their larger body of turnover research including Mak and Sockel (2001), Gaylard et al. (2005), and Allen et al. (2008), in order to provide a new positive perspective into IT workers' decisions to stay.

Chapter 3 – Methodology

Morse and Weiss (1955) found that 80% of workers would keep working even if they had enough money to stop. The authors conclude, "it would seem necessary that the occupation give the individual meaningful (in his own terms) and socially integrating activity" (p.198). Applying similar research processes, Vecchio (1980) found 72% of workers would keep working even if they had enough money to stop. Highhouse, Zickar, and Yankelevich (2010), again applying and updating the Morse and Weiss research processes, found that a majority of modern workers (68% in 2006) would continue to work even if they had enough money to stop.

This research, spanning more than 50 years, demonstrates that work has meaning beyond earning a wage and suggests a multi-context, multidimensional, purpose for work that combines personal and organization motives including achievement, affiliation, and dignity to give work an "existential meaning" (Highhouse et al., 2010, p.355). These contexts and dimensions align on the Organization Control side of the research spectrum described in Chapter 2 and offer organizations clues to the qualities (elements, features, processes, and environmental components) that can influence a worker's decision to stick (stay).

Work matters and highly skilled workers such as engineers and IT/IS workers identify organizations as a place where work exists; therefore, engineers and IT workers participate in organizations to extract some personal value (Lee & Maurer, 1997;

Slaughter & Ang, 2002). But, what personal value does the organization provide, and how can the organization specifically control work qualities (elements, features, processes, and environmental components) in order to increase the personal value of the organization as a work provider and create more sticky environments for highly mobile, desired, and valuable workers such as IT workers?

While some IT workers already stick with an organization for a long time, not all do. The IT worker professions demonstrate short tenures of just 4.5 years as well as the largest tenure standard deviation (28.55%) of all professions as reported by BLS for 2002 to 2012 (Appendix G), with one exception; construction showed a 29.97% standard deviation. However, some organizations create environments, possess key attributes (Heath & Heath, 2007), or otherwise develop qualities (elements, features, processes, and environmental components) that cause some IT workers to stick. Therefore, other organizations might mirror those sticky environments, attributes, or qualities to develop their own sticky schema (Heath & Heath, 2007).

The research of organization qualities (elements, features, processes, and environmental components) that influence sticky IT workers is supported by Ghapanchi and Aurum's (2011) IT attrition meta-analysis of more than 70 individual turnover drivers. Ghapanchi and Aurum (2011) determined the way to improve IT worker retention cannot be doing 70 or more things better than any other organization for every IT worker. Restated, organizations cannot attach a 70-factor qualifier to every IT worker as a way of increasing IT worker stickiness, if for no other reason, when more than one IT worker is employed the 70-factors become an exponential burden. Therefore, overarching, foundational, or architectural conditions (i.e. organization qualities) must

exist in organizations that guide or influence IT workers to overlook individual turnover drivers (Ghapanchi & Aurum, 2011) and choose sticking. But, what are the organization qualities (elements, features, processes, and environmental components) that organizations could reproduce for IT workers to choose sticking over leaving? What occurs in some organizations to cause an IT worker's preference for the current employer employee condition? This is the current research focus.

Research Goal

The goals for this research include (a) discover and describe qualities (elements, features, processes, and environmental components) that contribute to IT workers' employment at a single organization for at least 5.1 years (sixty-two months), which is one standard deviation greater than the mean and (b) provide a positive alternative to the standard postmortem exit interview processes conducted after IT workers have chosen to leave an organization..

Supporting the goals of this research, Heath and Heath (2007) state, "There is no "formula" for a sticky idea....but sticky ideas do draw from a common set of traits, which make them more likely to succeed" (p.15). Mankiw and Romer (1991) suggest stickiness is a larger component of environments and that sticky cycles may span other environmental changes. Moreover, Mak and Sockel (2001) acknowledge the worker's decision to stay or leave is environmentally complex; no one act or perception determines the choice. Combined, these descriptions suggest that organizations with sticky IT workers have developed qualities (elements, features, processes, and environmental

components) that create a sticky environment and offset other influencers in the employees' decision to participate (March & Simon, 1958, 1993)

Discovering the sticky qualities that matter to IT workers in an affirmative (positive) context may benefit other organizations through replication or imitation. Moreover, in organizations where change (mimicking the sticky environmental qualities) is not possible, this increased knowledge helps organizations understand why they must continue to manage and prepare for high IT worker turnover.

To refine the relevance of this research, participation was partially based on criteria sampling strategies; limited to IT workers who met five employment conditions including a hands-on role, worked for at least two employers, working in a for-profit organization, with 50 or more employees, that separates the IT function. See Appendix D for pre-qualification and identification questions.

Selecting a research method.

Creswell (2009) suggests qualitative and quantitative methods are different ends on a research continuum where qualitative research tends to use words and open-ended questions and quantitative research tends to use numbers and closed-ended questions. Qualitative research strengths include deep verbal characteristic descriptions, holistic practices instead of linear processes, a variety of approaches (Creswell cites up to 28) and improved research flexibility through the elimination of predefined categories (Creswell, 2009; Jones & Kottler, 2006; Patton, 2002). As described here, discovering the organization qualities (elements, features, processes, and environmental components) that contribute to long-term single organization employment for IT workers is a qualitative effort.

The method selection for this research used a two-step evaluation and elimination process to choose a preferred research method. First, quantitative research methods were eliminated because this research did not begin with quantifiable known or comparable factors (Jones & Kottler, 2006). Moreover, the rich data required to discover and describe organization qualities that influence the sticky IT worker lived experience would not be captured through quantitative efforts (Creswell, 2007; Giorgi, 1997; Patton 2002). Rich data to include meaning and structures as well as settings, contexts, and reflections that inform or contain the IT workers' lived experiences are most accommodated through qualitative study (Creswell, 2007; Giorgi, 1997; Patton 2002).

With a supported qualitative research determination, the second selection process evaluated five qualitative research design process described by Creswell (2007, 2009); narrative, ethnography, grounded theory, case study, and phenomenology. The qualitative design options were evaluated for alignment with discovery and description across (a) multiple instances, (b) varying times and locations, (c) an association with a similar action (or inaction) taken by many disconnected individuals (Creswell, 2007; Creswell, 2009; Lee, 1999). The phenomenological design was selected as the preferred research method to convey knowledge (discovery and description) through scientific processes.

Why phenomenology.

The following brief description provides an overview of Phenomenology and connections to this research. For a more detailed review of Phenomenology, see Appendix F.

Husserl and Carr (1970) stated, "Merely fact-minded sciences make merely fact-minded people" (p 6) while "philosophy retains its original meaning of one encompassing

all of the Sciences" (p.8). Philosophy also provides the subjectivity required for humans to understand their place in the world beyond a quantity of data. Subjectivity connects humans to the qualities of life and language and is how we express those qualities. The human act of expressing personal lived experiences through language *is* phenomenology and getting beneath how people describe personal experiences to the structures that underlie consciousness and to the essential nature of ideas is its goal (Rudestam & Newton, 2007).

Phenomenology is human context (Giorgi, 1997). A phenomenological approach is "discovery oriented" (Giorgi, 1997, paragraph 31) and requires an open attitude so that unexpected meanings in the data emerge. Phenomenological studies capture the first person point of view to determine the central structure of an experience including qualities of intent, direction, or meaning, and conditions that make the experience possible. In other words, Phenomenology connects conscious experience with background conditions (subjective, practical, and social) that support the experience and provide context (Smith, 2011).

Do you see? Do you understand? These questions simplify the Phenomenological scientific process. Through seeing (illumination) then developing understanding (elaboration) Phenomenology is the 1st science (Moustakas, 1994). To elaborate a thought or condition, one must first illuminate the thought or condition. That is to say, first you must discover a thing before you can study, analyze, or otherwise understand it. Giorgi (1997) referred to this process as the separation of the phenomenological event from its effect.

Phenomenological research should probe deep enough to distinguish between event and effect. Understanding an event is necessary, however, exploring as many effects as possible adds to the richness of the research. Moreover, a single observation can lead to multiple interpretations and descriptions (Giorgi, 1997; Taylor & Kaplan, 2008). Interpreting, probing, and understanding the data for this phenomenology, or any other phenomenology, requires the five basic research actions shared by all qualitative methods (Giorgi, 1997). Giorgi (1997) suggests (a) collecting verbal data (b) a holistic data reading and review, (c) segmenting the data into parts related to the phenomenon (d) a disciplined organizing and articulation of the data, and (e) synthesizing or summarizing the data so that others may understand the interpretation. Phenomenology is human context (Giorgi, 1997), IT workers are human and their organizations create contexts. Therefore, Phenomenology is an appropriate research design for this study.

Lastly, the phenomenological research design was selected because phenomenology seeks to understand through description how the larger context influences the smaller individual, or as stated by Creswell (2007) phenomenology seeks to understand "the essence of the experience" (p.78). These words (understand, essence, experience) provide the greatest design alignment with the discovery and description goals of this research. This Phenomenology research seeks discovery (illumination) to benefit all IT workers and their organizations and to provide future researchers new sticky IT worker ideas for further study. Appendix I combines the data collection and data interpretation actions for this research.

Data collection and sample size.

As suggested by Smith (2011) the first step in applying a structured phenomenological design is to specify a truth condition to be studied. Here the research condition is, *IT workers employed at one organization at least one standard deviation beyond the norm* (sixty-two months or longer). To collect data matching this condition, this research used Creswell's (2007) seven data collection activities (steps). Creswell's (2007) data collection activities include "locating a site or individual, gaining access and making rapport, sampling purposefully, collecting data, recording information, resolving field issues, and storing data" (p.117).

To meet Creswell's (2007) first and second structural activities (locating plus access and rapport), the sampling strategy combined criterion based and Snowball sampling (Rudestam, & Newton, 2007) to collect the names and contact information of potential research subjects who have worked in IT for at least sixty-two months. This sampling strategy adds to the integrity of the study by choosing not to employ convenience sampling, which can diminish the credibility of the information gathered (Creswell, 2007). Moreover, this sampling strategy engages many layers of people and professional connections to add to the richness of inputs and contexts along the way to finding qualified subjects. To execute, a shared acquaintance initiated research subject contact followed by an e-mail from the researcher to establish direct contact, explain the need, request a resume, and make rapport (Creswell, 2007) (see Appendix C). After the subject replied to the initial e-mail, communication continued via e-mail or telephone to establish scheduling requirements and documenting the subject's consent using the institution approved consent form (Appendix J).

To ensure purposive sampling (Creswell, 2007) research subjects were limited to IT workers currently employed at the same organization for at least sixty-two months who have worked for at least one other organization in an IT role. These subject qualifications are necessary to demonstrate appropriate and current single employer tenure as well as the subject's willingness and capacity to change employers if s/he chooses. Restated, the qualifiers demonstrate the employees' choice to stick.

To verify subject qualification and gather general demographic data, potential research subjects answered eleven control questions (Appendix D) before interview scheduling. Once qualified, an interview time was scheduled, a format (telephone, or webcam) agreed upon, and a consent form (Appendix J) was submitted and signed.

To collect and record data, Creswell's (2007) steps 4 and 5, the researcher contacted the research subject at the agreed time to administer the interview questions (Appendix E) and recorded the interview onto voice recorders for later transcription. In order to maintain consistency across interviews, yet allow the subject response latitude needed to generate a richness of data and personal contexts, the interviews followed a semi-structured process guided by the questionnaire (Appendix E). All questions were open-ended and asked with the participant's current organization as a limiting boundary. In other words, questions and answers applied to the current employer only, no prior employment was considered because prior employment demonstrates leaving not staying and is counter to the positive organization context stated for this research.

The open-ended questions (Appendix E), as well as the overall research plan, have passed the review of one research committee member who is also a leader in the Society for Human Resource Management (SHRM). The plan and questions were also

presented to Dr. Scott Brown the lead customer research director for a global training organization (my current employer) and C. Viedge, the named Viedge in Gaylard et al. (2005) cited throughout this research. Mr. Viedge and Dr. Brown both suggested that the questions needed to include a structured follow-up or probe question (e.g. what did you mean when you said...). The questions in Appendix E include the probe used throughout the interview process.

To address field issues and storage, Creswell's (2007) sixth and seventh steps, research subjects chose between a telephone or webcam interview as well as selected a time and day that was best for them to participate for approximately 60 minutes. Though some combinations of these interview formats created additional work for the researcher (Creswell, 2007) the intent was to make participation as easy and enjoyable as possible for the subject. Once created, the interview recordings and transcripts were stored electronically in two secure locations (the researcher's password protected PC and an encrypted external storage array).

With the data collection steps outlined, the question of sample size emerges. For a phenomenological study, Creswell (2007) and Polkinghorne (1989) suggest as few as 1 and up to 25 study participants (sample size). The "quality of data, the scope of the study, the nature of the topic, the amount of useful information obtained from each participant..." (Morse, 2000, p.3) all contribute to sample size. Morse (2000) supports a sample size below the teens by stating, if "one is doing a phenomenological study and... one has a large amount of data for each participant... [one] needs fewer participants in the study perhaps only 6 to 10" (p.4-5). Rudestam and Newton (2007) suggest that the hours-

long processes required for a phenomenology supports "a relatively small number of participants (10 or fewer might be appropriate)..." (p.107).

Beyond subject counts or ranges, Creswell (2007), Polkinghorne (1989), Morse (2000), Rudestam and Newton (2007) suggest the number of participants should be determined by data saturation. As articulated by Rudestam and Newton (2007), data saturation – comprehensively exploring a concept until its relationships with the data and other concepts become theoretically meaningful - will determine the final number of subjects interviewed. This research applied Creswell's (2007) seven data collection actions to ten sticky IT workers in the second and third quarters of 2013. Appendix I details the data collection and data interpretation actions.

Understanding the phenomenon.

"There is no single so-called correct way to conduct phenomenological research. Rather the specific method used depends, to a large extent, on the purposes of the researcher, his or her skills and talents, and the nature of the research question and data collected" (Hein & Austin, 2001, p.3). The chosen method "should be viewed as a providing only a general guideline- one that the researcher then modifies to meet the particular needs of the study. Thus... adapted to the characteristics of the particular phenomenon being investigated" (Hein & Austin, 2001, p.3). This research used a more empirical approach to phenomenological discovery by following the structured research process outlined in Appendix I.

Toward deeper understanding and separating context from action, Heath and Heath (2007) suggest asking "why" questions three or more times to help the person answering overcome the curse of knowledge (lived experience that informs the current

situation) and uncover the root answers or causal factors. The interview questions defined for this research (Appendix E) include restatement and narrowing of the "why" question across four instances to help the subjects uncover and articulate the layers of reasons they stick with one organization.

To achieve Phenomenological Reduction (Giorgi, 1997), interview recordings were transcribed into categorized text documents to allow for textural analysis and re-analysis and to reveal asynchronous perspectives or horizons within the data (Moustakas, 1970). The researcher's analyses were captured in a single document to support any common discoveries or descriptions that emerge through the multiple analyses (Moustakas,1994; Saldana, 2007). Data interpretation aids included word counting in Microsoft Word, graphs using the online data tool at surveygizmo.com, and concept mapping using the Cmap Tools from http://cmap.ihmc.us/. Other discovery aids suggested by Newton and Rudestam (1999) and Saldana (2007) included Microsoft Excel to manipulate text and seek trends or create graphic representations of the data and add a visual perspective to the textual transcript data. Where beneficial, data interpretation and visual relationship tools from http://www.wordle.net were also used to discover data connections, understand frequencies, and visualize patterns,

Using the tools above and the processes outlined in Appendix I, Giorgi's (1997) holistic data reading and review, segmenting the data into parts, disciplined organizing and articulation, and synthesis of the data enabled the sticky IT worker phenomenon to emerge as seven themes. The researcher's responsibility is to capture and articulate the emergence (Smith, 2011). To do so, data findings are described in narrative form in Chapter 4.

Study Participants.

To improve descriptions of the sticky IT worker phenomenon, this research used data collected in the Appendix D questionnaire to select only research subjects who have been employed in IT worker roles at two or more organizations. This two or more organization (employer) filter serves to demonstrate the subject's willingness and capacity to leave an organization and further suggests that the subject chooses to stick with the current organization.

To document and confirm specific IT work roles, tenure, and organization membership as well as eliminate researcher misunderstanding arising from role description translations or communication errors, the Appendix D questionnaire required research subjects to identify their IT work roles and tenures based on the SOC codes and IT work role descriptions in Appendix B. For example, a research subject might list their current IT work role as 15-0031 for 65 months then 15-0042 for the 23 months prior at another organization. This combination of IT work at two or more organizations and current organization membership exceeding sixty-two months qualified the research subject to participate in this research.

Risks.

In phenomenology, interpretation and description are acts conducted by humans and applied to events affecting other humans (Giorgi, 1997). It would be foolish to assume the researchers or research subjects do not add bias in describing or documenting events and experiences. At a minimum, this can create descriptions that are misguiding and suggest the reader should be aware that biases can transfer into final written reports (Giorgi, 1997).

Beyond researcher biases, but still researcher dependent, is the risk that the researcher asks poor questions that are misdirected, inappropriate, or do not fit the open-ended format required by personal interviews (Creswell, 2009). Questions should be open-ended (what, how, or why), personal (you), and focus the participants' thinking (this experience) (Jones & Kottler, 2006). To mitigate this risk, the interview questions in Appendix E are purposefully phrased open-ended questions validated by three other researchers.

Another risk is letting the mechanics of the process interfere with the quality of the results (Creswell, 2007). At minimum, interviews involve introduction, agreement, and qualification, as well as aligning schedules, potential time zone discrepancies, and unknown interview distractions that may reduce the quality of the interview or alter the interview contexts. Researcher awareness and attention serve as mechanical process mitigations. Other risk mitigations include a scheduled break if any interview segment exceeds sixty minutes, as well as a study design that separates data gathering from data validation making them two or more distinct events.

Lastly, to address physical (recording, storage, security) risks, interviews were digitally recorded using two Digital Voice Recorders. The files were stored as .wmf and .mp3 files in encrypted folders on two storage devices. Only the researcher has regular access to the files and notes.

Ethics.

Before the research began, a Human Subjects Review Board evaluated the risk levels of the known risks and the overall research effort including any ethical issues presented by this study and the selection biases for research subject who must know

someone the researcher knows, have worked in IT at two or more organizations, have been employed at the current organization for sixty-two months or more, and have available time to participate in an hours-long research process spread over many weeks. Additionally, each subject signed the approved Human Subject Consent form (Appendix J) before the interview began (Appendix E). The study also requires trust that the researcher will not share personally identifiable information and that the data will be used only for its stated purposes. To assure research subjects that data remained confidential, each received an Assigned Interview Code (AIC) that served as their identification for interviews and surveys.

Errors.

Organizing a mass of raw data including pages of transcripts, hours of audio recordings, stacks of handwritten notes and observations, and the structured documents gathered from research participants might overwhelm any researcher (Rudestam & Newton, 2007). Moreover, each act in the discovery and description processes introduces the opportunity for errors (Hoepfl, 1997). Kirk and Miller (1986) note three errors that qualitative researchers should address in order to maintain research reliability and validity. The three errors are Type 1which occurs when the human researcher interprets relationships that do not exist, Type 2 that occurs when the researcher rejects relationships that actually exist and Type 3 errors that occurs when the researcher asks the wrong questions (Kirk & Miller, 1986).

To reduce Type 1 and 2 errors this research used triangulation methods suggested by Husserl and Clark (1970), Smith (2011), and Moustakas (1994), by asking the research subjects to confirm the transcribed audio recordings and validate any

discoveries, descriptions, or data interpretations. Furthermore, emergent phenomena alignment and agreement were confirmed through validation surveys.

To reduce Type 3 errors the research employed a pre-qualification process for research subjects (Appendix D) to ensure the research questions were relevant. Furthermore, the research asked a predefined set of expert reviewed questions (Appendix E) to prevent script deviation and irrelevant data gathering.

Research Study Limits.

This research is narrowly focused on IT workers, in the USA, who know someone that the researcher also knows and are willing to donate hours of participation time for minimal compensation. This subset of the general population reduces the likelihood that any discoveries will be generalizable beyond a subset of the IT worker population.

Finally, because this research focused on discovery and description, any quantitative analysis of one or more of the discovered organization qualities will remain for future research efforts to apply and test across other professions and non-IT organizations. However, there is no guarantee that future research will occur.

Research Plan.

The following research process provides an overview of the actions and sequences used to complete the phenomenology based on Creswell's (2007) seven step data collection process. The full research process is located in Appendix I.

1- Research committee approvals

2- Collect research participants through Snowball processes (Creswell's step one)

3- Make initial contact with the participant to establish rapport (Creswell's step two)

4- Pre-Interview to qualify then schedule each participant (Creswell's step three)

5- Conduct and record interview to ask all questions, record, and store

6- Transcribe interviews

7- Send transcriptions to participants to validate "this is what you said"

8- Re-view, re-search, re-visit the data to discover organization qualities (themes) contributing to the sticky IT worker phenomenon

9- Collect and interpret interviews until data saturation is achieved

   a. Loop to step two until saturation

10- Describe the qualities (themes) and connect with contexts where appropriate

11- Capture and summarize the sticky IT Worker phenomenon findings

12- Send summary to the participants for validation or fit agreement

13- Document research findings and outcomes in dissertation chapters four and five

14- Clean-up and format to meet final report guidelines

Chapter 4 - Results

The literature review above showed that IT workers are an under researched group or class of worker. However, as a group these workers command some of the highest salaries in an organization (BLS, 2010), making them highly valued assets worth an organization's retention efforts. To date, much of the limited IT worker retention research is biased toward understanding, measuring, and increasing knowledge of the turnover (departure) event. The research presented here addresses both of these prior research limitations (quantity and type) through discovery and description of the reasons IT workers stay with an organization.

Phenomenological design processes guided this research effort to discover and describe organization qualities that contribute to IT worker staying (sticking). The research followed Creswell's (2007) seven step data collection process, "locating a site or individual, gaining access and making rapport, sampling purposefully, collecting data, recording information, resolving field issues, and storing data" (p.117). Then the research applied Giorgi's (1997) phenomenology development guidelines to allow for data interpretation, understanding, and meaning to emerge from the collected data. What emerged might be described as a multi-factor process that weights a combination of seven organization qualities to support the IT workers' decision to defer change, to stick.

The Research Process

Snowball sampling.

A Snowball sampling process was employed to collect possible subject (Creswell, 2007). Through the period May 31 to July 27, 2013 thirty-two e-mails detailing the subject qualifications (IT worker, not a manger, worked for at least two organizations, at least sixty-two months current tenure, works in a for-profit organization with at least fifty employees) were sent to potential subject leads with a request to forward the e-mail to contacts who work in Information Technology (see Appendix K for e-mail text). The potential subject leads forwarded the e-mail to thirty-seven other people who forwarded the e-mail to eleven others. Through this eighty e-mail contact process (32+37+11), ten possible research subjects emerged. See Figure 2 and Figure 3 for visual representations of the Snowball process.

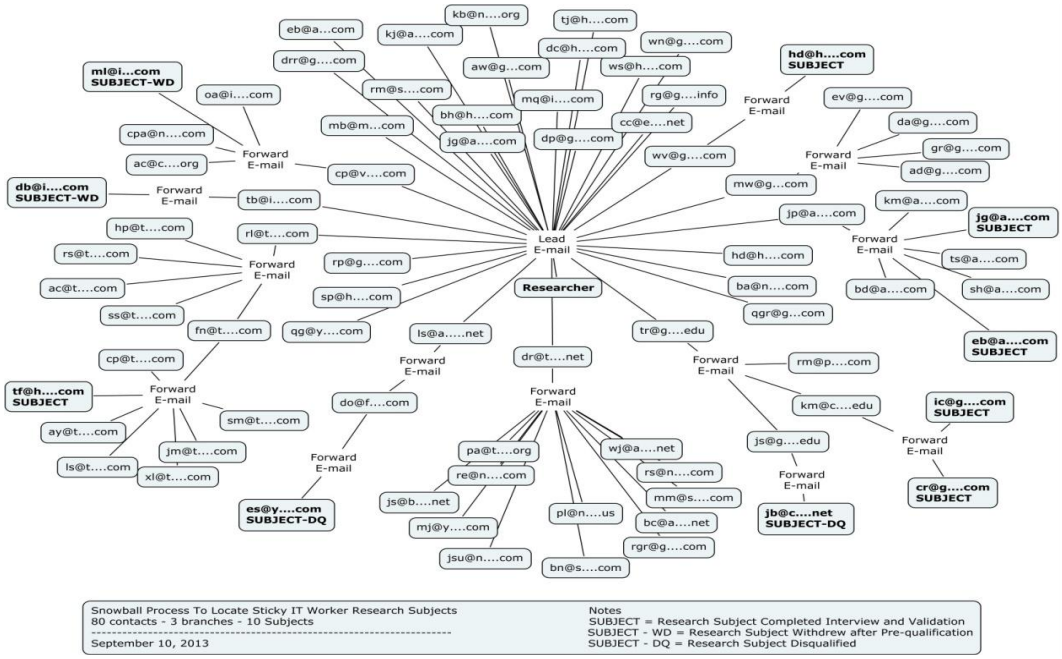


Figure 2. **Snowball Process to Recruit Research Subjects**

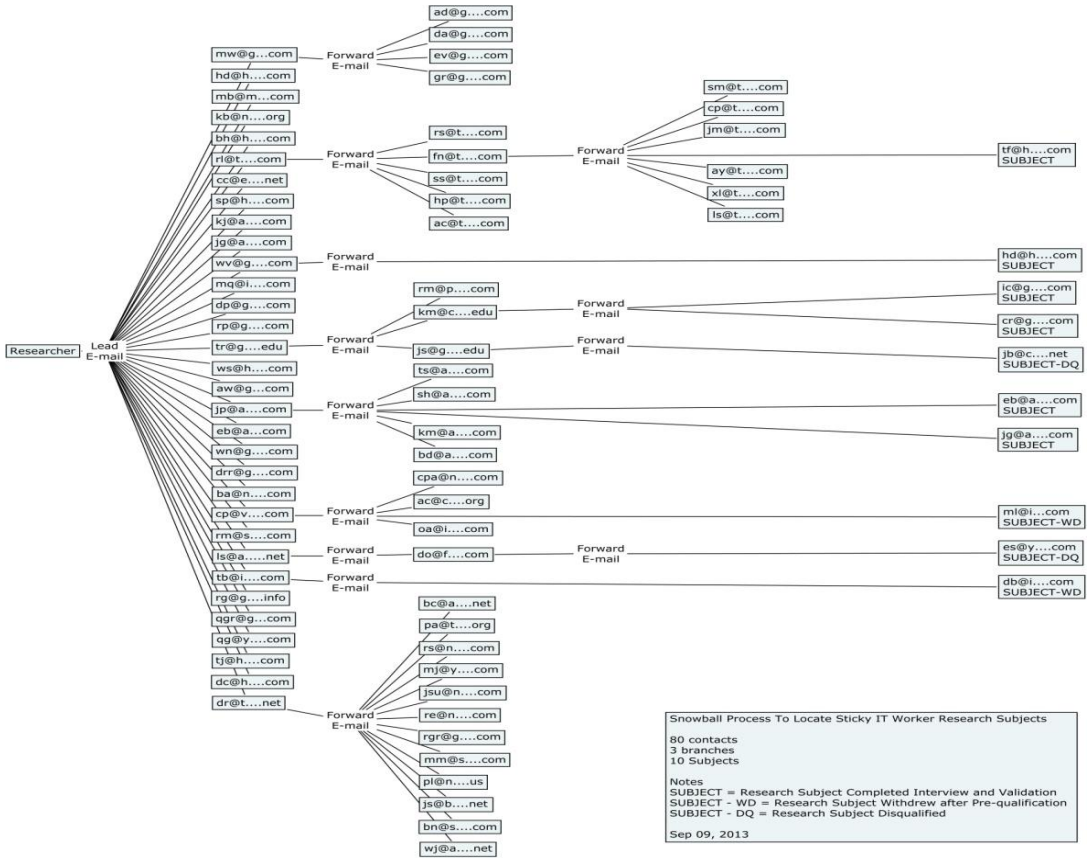


Figure 3. **Horizontal Snowball Process to Recruit Research Subjects**

From the collection of ten possible research subjects, one was disqualified through initial e-mail exchanges that revealed s/he worked for a non-profit organization. The remaining nine possible research subjects were issued Assigned Interview Codes (AIC) to protect their personal information. The AIC code formatting was based on the six-digit date of first contact with the potential research subject (e.g. 060613) with the corresponding letter increment added before the year. For example subject number four was assigned the "D" increment as in A=1, B=2, C=3, etc. These components combined to form subject four's AIC, 0606D13. The process repeated with letters A through I and date ranges 053113 to 080513.Then, each of the nine possible research subjects

completed an eleven question on-line pre-qualification survey to confirm their research eligibility and gather demographic data.

Eleven pre-qualification question outline (see Appendix D for full survey).

1. Number of Months Working in IT for Your Current Organization ___
2. Gender
3. Current Age Range
4. Highest Degree or Diploma Completed
5. List your prior IT roles (past or current organization) and the duration (in months), beginning with your current IT role and working backwards.
6. Is the organization a Government Agency or "Non Profit" [IRS 501c3 or 501c4] entity?
7. Where is the organization located? _____ (Zip Code)
8. Approximately how long has the organization existed? ___(Years)
9. Does the organization employ 50 or more people?

10 - Does the organization separate the IT or information management roles?

11- Which of the North American Industry Classification System (NAICS) codes best describes the organization's business function?

All of the AIC assigned research subjects qualified and agreed to participate in the research. However, two subjects withdrew before the interview process, due to their time limitations, leaving seven subjects. The seven subjects completed the interview process, described below. During the interview process, one subject revealed that s/he currently worked in a management role, not a hands-on IT role, and was disqualified; leaving six

qualified subjects who completed the interview, transcript validation, and data triangulation survey processes to provide the raw data for this phenomenological study.

Research subject filters.

The IT worker subject pre-qualification requirements were designed to limit the research to IT workers who could leave their current employers, but choose not to. Specifically, the multiple organization requirement demonstrated the subjects did find IT work in another organization. The sixty-two month requirement ensured the IT worker's current tenure exceeded one standard deviation for average IT worker tenure. The hands-on requirement was designed to filter managers from the research because this is IT worker research, not IT management research. The for-profit requirement was designed to limit government workers and full time non-profit volunteers. The working for an organization that employs fifty or more people requirement was designed to reduce the possibility that subjects worked in a family owned or boutique consulting organization where factors that other organizations could not replicate might exist. The fifty or more employees filter emerged from the United States Census Bureau (http://censtats.census.gov/cgi-bin/cbpnaic/cbpcomp.pl, April 14, 2013) and reduced the possible pool of organizations to 5.0% of all U.S. employers.

The interviews.

After signing and returning the consent form approved by the research committee and the institution (Appendix J), six qualified research subjects completed Go To Meeting hosted telephone conference call interviews lasting 35 to 57 minutes where they answered the nine structured interview questions without any prior reading or evaluation

of the questions. That is the subjects did not receive the questions in advance. The nine research questions outlined below are part of the full question script listed in Appendix E.

1. One feature of the IT industry is frequent organization / employer changing or turnover. Why have you stayed with your current organization for _ (months)?
2. Over the __ years, when have you considered going to work somewhere else?
3. When did you most recently look for work in another organization?
4. Why did you choose to stay with your current organization?
5. What might another organization offer to cause you to choose working somewhere else?
6. If your current organization does not offer you these things, why have you stayed more than 5 years?
7. As an experienced IT worker, capable of working for many organizations, why do you think you choose to stay with your current organization?
8. Is there any other information I should know about why you have stayed with your current employer?
9. Is there any question I should have asked?

As suggested by Dr. Brown and Conrad Viege (see Ch. 3 for detail), the nine structured interview questions were supplemented by a standard probe question whenever the subject seemed to want to say more but stopped for some unknown reason. The standard probe question was, “Could you give me an example of what you mean by ___ (work-life quality), so that I might better understand?”

For example, subject C's answer to question 1 was, "The big thing for me has been the team of people that I work with and the opportunity to take on new tasks and learn new things during that period." Based on a long pause (silence on the phone) I probed by asking "Could you give me an example of what you mean when you say opportunity?" The subject replied, "Within the first two years I took over the networking as well including firewall, switches, circuits and jumped in with both feet and started paddling." This additional data helped support the emergence of the opportunity theme.

All interviews were recorded via the Go To Meeting built-in recording option and two backup voice recorders. The voice recorder files were not needed for any further processing because all of the Go To Meeting audio downloads were sufficient to create the interview transcripts. In addition to the audio recordings, hand written notes were taken to serve as a map for areas of interest in the transcripts in order guide the researcher's future data review and analysis. Though the interview words were captured in audio and in transcripts, the hand written notes provided another analysis input.

One example of using hand written notes to guide analysis occurred when subject I included the phrase "job shadow" in response to question 1. My handwritten note captured that phrase as part of the subject's discussion of the ways learning was a part of the organization. During the transcript reviews, the subject's input "We have opportunities to brainstorm and job shadow and training opportunities. They are willing to send us to training or allow us to go present some of the great work you have been doing." helped support both the opportunity and learning themes. Note this was the last subject interviewed and her/his answers were confirming research saturation. Both

opportunity and learning had emerged as sticky IT worker themes by this point in the research process.

Transcript creation and validation.

The downloaded Go To Meeting audio files were stored on a computer equipped with an MP3 file player that could play, pause, and rewind the sound file. The researcher played each interview from beginning to end, pausing and rewinding where required to capture the subjects' exact wording as s/he responded to the nine questions and probing questions. The typed transcripts contained 1,079 to 1,987 words in response to the structured question and probes. The transcripts did not capture the pre-interview introductions and other small talk (weather, family, vacation plans, etc.) used to build rapport before the interview process began (Giorgi, 1997).

Each transcript was e-mailed to the subject for review and confirmation. Only one transcript contained errors, which were corrected before transcript analysis began. The transcription errors occurred on subject 0531A13's transcript and s/he corrected them in the confirmation e-mail reply, stating "The only minor discrepancies are in question 4 where it should be relational database, and in question 7 where the person I mentioned is one of the funders of the company." The transcription errors were "rational database" and "founder of the company." These errors occurred on the first transcript, which caused me to rewind and replay more often as I transcribed the remaining interview recordings, thus eliminating errors.

Data immersion and organization qualities emergence.

Once verified, each transcript was added to a master document with each answer to question one added to the question one section, answers to question two added to the

question two section, etc. until all responses including any probing responses were collected in the appropriate section. Once transcript two was captured in the master document initial coding analysis began (Saldana, 2009) using Microsoft Word and Excel, Wordle.net, and the CMAP concept mapping tools to find clusters of words and supporting contexts (Kahneman, 2011) to guide data interpretation, understanding, and meaning discovery processes (Giorgi, 1997). Though some common words and contexts emerged with only two transcripts (e.g., "The big thing for me has been the team of people that I work with" and "It is the people you work with. I think that is the thing."), word clusters that could support a larger context or theme became more common with each transcript addition. For example, words supporting the learning theme emerged from transcript one but were not present in transcript two. However, adding transcript three provided additional support for the learning theme. This developing theme support is captured by the grey blocks in Table 4 below that show word clustering for theme support emerging through the first three transcripts. Then theme saturation emerges when transcript four is added, as noted by the reduced number of grey blocks in the D column of Table 4. The saturation visual appears by tracking the grey blocks from column A to the right (columns B and C) until the grey blocks become numbers. Research subjects added new words up to subject D (column D). Saturation for the seven emerging themes was confirmed by the addition of transcript five (column H), where no new words were added (no string of grey blocks going back to column A). By the time transcript six was added to the master document only three grey blocks existed in column I of Table 4.

Table 4

Theme Emergence After Each Transcript

Themes	Words	Subject Use In Theme Context						Per Word
	417	**A**	**B**	**C**	**D**	**H**	**I**	**Count**
Learning	84	6		9	1		6	22
Different		4	1		1	9	7	22
Current		4			4		2	10
New 1/2		2		6	2		2	12
Doing		1			1	1	4	7
Know		1	1	6	1		2	11
People	70	7	4	6	5	3	9	34
Team		3		6	5	3		17
Person		2	2		1	1		6
Our		1		2		3	1	7
Someone		2	1		2		1	6
Opportunity	63	4		5	1	1	14	25
Time		3	3	3	2		5	16
Offer		2	2		3	1	2	10
New 1/2		3		4	2		3	12
Career	54		3			1	3	7
Experience		1		2	6	1	1	11
School			1			4	1	6
Job		2		2	6	2	6	18
Working		6	1	1		2	2	12
Organization	54	3	4		2	2	7	18
Group		7		1			1	9
Management		7	4		4	2	10	27
Pay	47	1	1		4		4	10
Need		2	2			1	3	8
Benefits			1	2	4	1		8
Money					2	2	2	6
Enough		1	2		1		2	6
Having			1	3	1	1	3	9

Theme Emergence After Each Transcript (Cont'd)

Environment	45	1	2	1		1	9	14
Hours		3	1	1	2		3	10
Feel		4				1	4	9
Place		1	1	1		1	2	6
Area					1	2	3	6

A note regarding the "New 1/2" supporting word listings. The word new was used in both contexts (themes) learning and opportunity. The transcripts determined how to allocate each use. For example, subject D sated, "I am new to the SAP world so they are supportive." which supported opportunity while subject C stated, "Over that time period I have had a chance to learn new things." which supported learning.

Emerged sticky IT worker themes.

Transcript contexts guided the focused coding processes (Saldana, 2009) that determined if a word with a high count contributed to sticky IT worker theme emergence. For example, the word "like" was used 33 times across all interviews. However, it was primarily used for comparing one thing to another or providing examples (e.g. ", they give back in ways like helping the environment"). Therefore, the word *like* and others used in a similar manner did not contribute to the theme emergence processes and were removed.

Table 4 above shows the words and counts supporting the final version of the coding, immersion, and emergence processes (Giorgi, 1997; Kahneman, 2011; Moustakas, 1994; Saldana, 2009). The themes that remain – learning, people, opportunity, career, organization, pay, environment - are those that received enough support from the transcript language to contribute to organization qualities that are

important to this sample of sticky IT workers. Through the data immersion processes, as many as ten word clusters were identified as possible themes, including a Like theme. However, only seven themes received enough support from the transcript language to emerge as important to sticky IT workers.

In addition to the possible *like* theme, the words job and confidence were also lead words in possible theme clusters (Kahneman, 2011; Saldana, 2009). The job cluster was added to the career theme based on transcript contexts such as, "I told you about the other job, it was very interesting because this company makes rockets. That kind of opportunity would draw me away." The confidence cluster was removed because only one subject supported the language and contexts.

These are the sorts of possibilities, potential insights, validation, support seeking, and ultimately confirming or disconfirming activities that occur through the phenomenological processes of data interpretation, understanding, and meaning development (Giorgi, 1997). Moustakas (1994) described this phenomenological processes as thinking you see something, investigating, revisiting the data again and again to dig deeper for contexts and connections, and in the end, they emerge or they do not.

Validation, valuation, and ranking.

With seven supported themes, the research subjects were asked to complete an online survey to validate, value, and rank each theme. The online survey is outlined below (see Appendix L for full survey text).

Based on the theme title, supporting words, and sentence excerpts, do the following themes make a difference in your decision to work for your current employer? (Yes/ No)

Career

Environment

Learning

Opportunity

Organization

Pay

People

Based on the theme title, supporting words, and sentence excerpts, please weight the value of the following themes in your decision to work for your current employer?

1- Very Important

2- Important

3- Minor Importance

4- Neither Important nor Unimportant

5- Minor Unimportant

6- Unimportant

7- Not Important At All

Career

Environment

Learning

Opportunity

Organization

Pay

People

Based on the theme title, supporting words, and sentence excerpts, please rank the following themes with regards to making a difference in your decision to work for your current employer. Where...1= Most Important ...and... 7= Least Important

Career

Environment

Learning

Opportunity

Organization

Pay

People

The survey process re-exposed the subjects to the sticky IT worker data in a different format, at a different time, and required use of different cognition processes, System 1 (reactive, emotional) versus the System 2 (logical, analytical) cognitive processes used during the interviews (Kahneman, 2011). As defined by Cohen, Manion, and Morrison (2003), triangulation is "the use of two or more methods of data collection in the study of some aspect of human behaviour [*sic*]" (p.112). This second method (online survey) and the differing contexts served as a theme triangulation mechanism and resulted in rankings that are not aligned with theme word counts.

The ranking misalignment is a positive outcome because phenomenological research should probe deep enough to distinguish between event and effect (Giorgi, 1997; Taylor & Kaplan, 2008). The ranking misalignments demonstrate event emergence through System 2 thinking and differing effect (value) emergence from the same subjects using System 1 thinking (Giorgi, 1997; Kahneman, 2011). Probing deep enough to show

event and effect separation demonstrates the expected outcomes when phenomenological processes are properly applied (Giorgi, 1997; Moustakas, 1994) and validates the research efforts described here.

Survey completion and subject compensation.

The six research subjects completed the validation, valuation, and ranking surveys over a one-week period, thus completing their research commitments. Once the researcher verified survey completion, each subject received a fifty-dollar gift card, as stated in the original contact e-mail (Appendix C).

Research and contact processes summary.

The research communication processes that began with the eighty snowball contacts depicted in Figures 1 and 2 continued through 403 e-mails exchanged between the researcher, subject leads, potential subjects, and qualified subjects as well as telephone interviews, and online surveys. Due to the geographic distribution and multiple time-zone differences across the USA (Eastern, Central, Pacific), e-mail was the preferred communication method for everything except for the telephone interview. The subject contact sequence:

1- Snowball process to collect potential subjects (Figure 2 and Figure 3)

2- Qualify current IT worker at same organization for 62 months via initial emails

3- Assign Interviewee Code (Format = 4 digit month and day _ Letter _ 2 digit year). Example 0531A13 = May 31, 2013 subject # A

4- Send AIC contact e-mail with pre-qualification survey link (Appendix C)

5- Evaluate pre-qualification survey (Appendix D) answers to validate all five research subject requirements

   a. Hands-on IT worker, not Manager

   b. IT Worker for more than 62 months at same organization

   c. IT Worker for more than one organization

   d. Organization is For-Profit

   e. Organization employs 50 or more workers

6- Contact via e-mail to notify of qualification or disqualification

7- If qualified, work through interview scheduling e-mail process

8- Receive signed research consent form (Appendix J)

9- Conduct telephone interview (Appendix E)

10- E-mail interview transcript to validate and correct if needed

   a. Add valid transcript to phenomenon and theme analysis documents

   b. Immersion to seek and articulate emerging organization qualities

11- E-mail phenomena alignment and weighting online survey (Appendix L)

12- Confirm completion of the alignment and weighting survey

13- Send thank you and gift card

Figure 4 below provides a map of the thirteen steps in research contact sequence as well as the process flow including decision points, delays, and process ends.

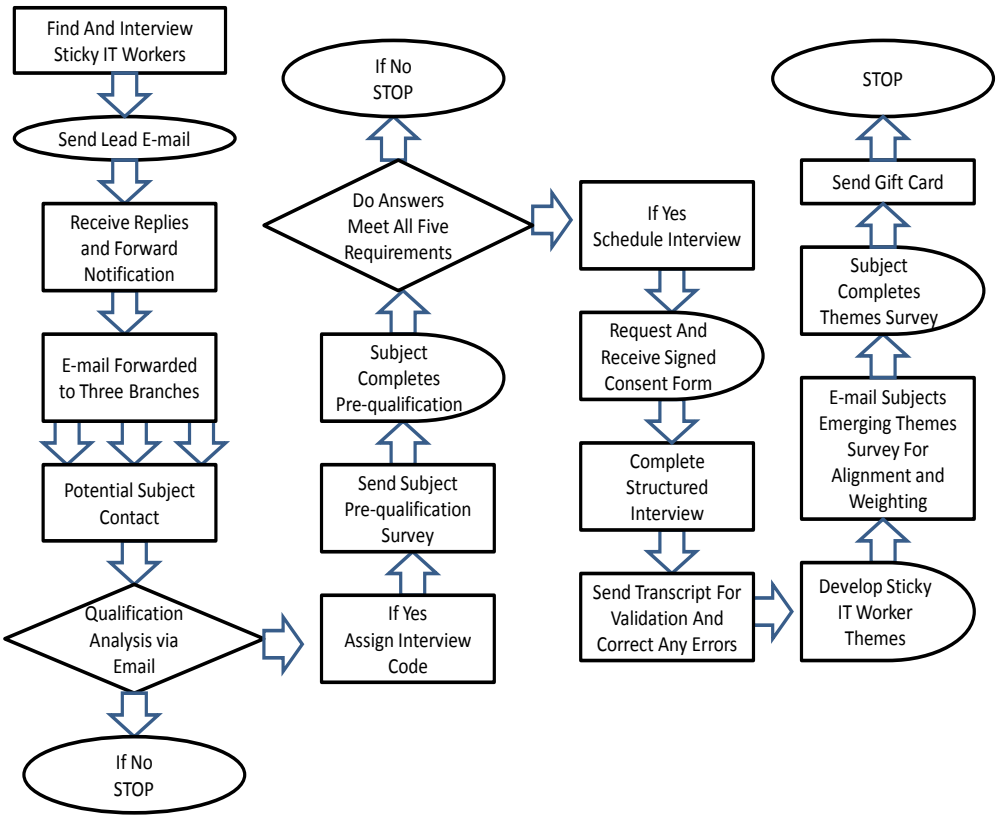


Figure 4. **Research Subject Contact Sequence and Process Flow**

What the Data Showed – Findings

The sections above provide the research process detail that aligns with Creswell's (2007) seven step data collection process, "locating a site or individual, gaining access and making rapport, sampling purposefully, collecting data, recording information, resolving field issues, and storing data" (p.117) and the approved research process (Appendix I).

A research note about numbers and counting; numbers appear throughout chapter four and spill over into chapter five. The numbers represent markers along the phenomenological journey. The word counting combined with Wordle images (Figure 5 and Appendix M) of the language provided focus mechanisms based on the premise that increased word usage signaled an area that the researcher should give more attention (Kahneman, 2011). Higher word counts provided starting points for analysis, not end-points of analysis. Higher word counts also created larger fonts in the Wordle tool as shown in Figure 5.

Figure 5. **Wordle.net Screen Capture Showing Theme Emergence**

Employing organization detail.

Answers to the pre-qualification survey provided organization descriptions that show the research subjects' employment varied from insurance, to retail, to manufacturing, to information services, to biochemical industries (Table 5). These data served as another check to validate each subject's qualifications for this research. The NAICS code data confirmed the subject did not work in public administration (government) and the organization age data confirmed a five or more year existence. Had the age not exceed five years, the subject could not have been employed there for sixty-two months or longer. The zip code data confirmed the organization was located in the USA, which aligns with the tenure data from the BLS. The 50 or more employee data supports the top 5.0% organization measure from the U.S. Census Bureau (2013). Lastly, the separate IT function data aligns with the specific BLS SOC job code data to filter potential subjects who perform IT work and other jobs too.

Table 5

Organization Descriptions from Pre-qualification Surveys

Zip Code	Org. Age (years)	50 or More Employees	Separate IT Functions	NAICS Code – Description http://www.census.gov/cgi-bin/sssd/naics/naicsrch?chart=2012
97201	108	Yes	Yes	81 - Other Services (except Public Administration) - Insurance
27606	15	Yes	Yes	51- Information
97201	102	Yes	Yes	44-45 - Retail Trade
98057	108	Yes	Yes	31-33 - Manufacturing
97077	63	Yes	Yes	31 - Manufacturing
99354	53	Yes	Yes	81 - Other Services (except Public Administration) - Biochemical

Research subject detail.

Answers to the pre-qualification survey also provided research subject descriptions that first validated current and prior IT role tenures, and second show the research subjects' are a varied age, education, and IT experienced group (Table 6 and Table 7). This variety reduces the risks of age, IT role, or experience biases. Moreover, the 50% female sample also removes the risk of gender bias.

Table 6

Research Subject IT Role Descriptions and Demographics

Subject	Gender	Completed Degree	Age Range	Current SOC Job Code	Current Tenure Months	Prior SOC Job Code	Prior Tenure Months	Total IT Tenure Months
A	Female	Masters	50-54	15-1132	75	15-1131	48	120
B	Male	Bachelors	25-29	15-1122	75	15-1150	17	89
C	Female	High School	40-44	15-1142	66	15-1199	107	170
D	Male	Bachelors	40-44	15-1142	93	15-1199	48	138
H	Male	Masters	30-34	15-1130	85	15-1132	24	108
I	Female	Masters	30-34	15-1130	74	15-1130	36	109

Table 7

Research Subject IT Employment and Demographic Averages

Description	Measure
Average Current IT Tenure in Months	78
Average Prior IT Tenure in Months	47
Average Total IT Tenure in Months	125
Average Age in Years	39
High School Diploma	100%
Bachelors Degree	83%
Masters Degree	50%
Female	50%
Male	50%

Discovering seven sticky IT worker themes.

Seven sticky IT worker themes emerged through the application of Giorgi's (1997) phenomenological discovery processes including interpreting the data, seeking

understanding, and allowing meaning to emerge. The master document and supporting word counting Excel tables revealed words of similar meaning that led back to the transcripts to discover understanding, context, and similar use. For example, the word *people* was frequently connected to the word *team* (e.g., the people on my team, or the team of people I work with). As suggested by Kahneman (2011), these similar use instances guided the creation of word clusters based on the transcript contexts for each research question. Table 8 below, provides a summary version of the full word counting captured in Table 4 and contains the listing of the themes that remained through the context based analyses.

Table 8

Emerging Themes Summary

Themes	Word Counts	Discovery Data Set %
Learning	84	20.1%
People	70	16.8%
Opportunity	63	15.1%
Career	54	12.9%
Organization	54	12.9%
Pay	47	11.3%
Environment	45	10.8%

The reading and re-reading of the transcripts, the filtering of word use contexts, and initial clustering activities eventually reduced the contextually supported themes (clusters) to seven (Giorgi, 1997; Moustakas, 1994). Though other clusters were legitimate (contained words of similar meaning), they did not add to the discovery and understanding of IT worker stickiness. For example, a word cluster labeled “belief in oneself” contained the words confidence, important, and understanding. However, the transcript data did not support “belief in oneself” as a sticky IT worker organization

quality. Therefore, the cluster was removed from further analysis. Continued analysis of the data, the seven remaining word clusters, and the transcript contexts allowed the emergence of seven sticky IT worker themes.

Confirming sticky IT worker themes.

Table 8 above shows the summarized sticky IT worker themes, cluster word counts, and discovery data set percentages that supported the contexts emerging from the transcripts and the master document. Not all subjects used all words to describe why they have stayed with one organization for a long time. Therefore, the seven sticky IT worker themes were triangulated across the subject group to confirm, weight, and rank their value using an online survey (Appendix L). This process provided each subject the opportunity to validate the importance of the seven themes as well as assign values to each, then rank each theme's importance (highest to lowest). The validation, valuation, and ranking results are listed in Table 9 and Figures 6 and 7.

Table 9

Subject Theme Validation (Yes / No)

Sticky IT Worker Theme Important - Yes / No (Listed Alphabetically)							
	Career	Environment	Learning	Opportunity	Organization	Pay	People
Yes	4	6	6	6	4	6	6
No	2	0	0	0	2	0	0

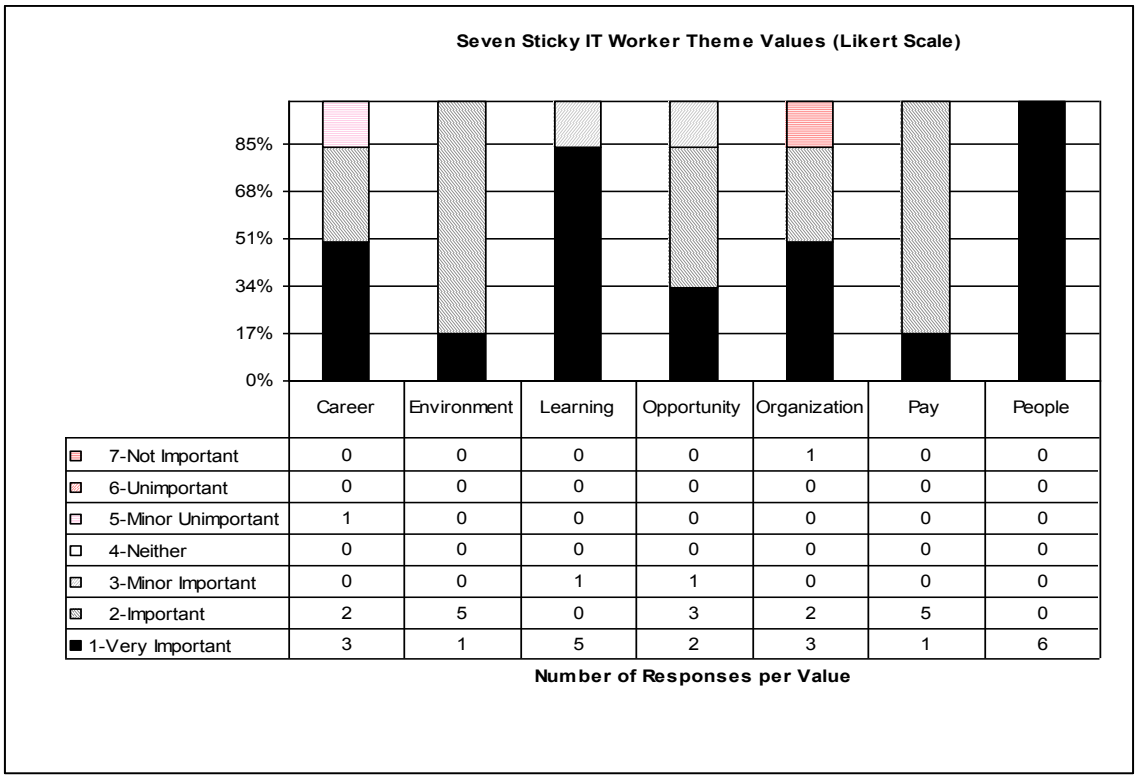


Figure 6. **Subject Theme Valuation (Likert Scale)**

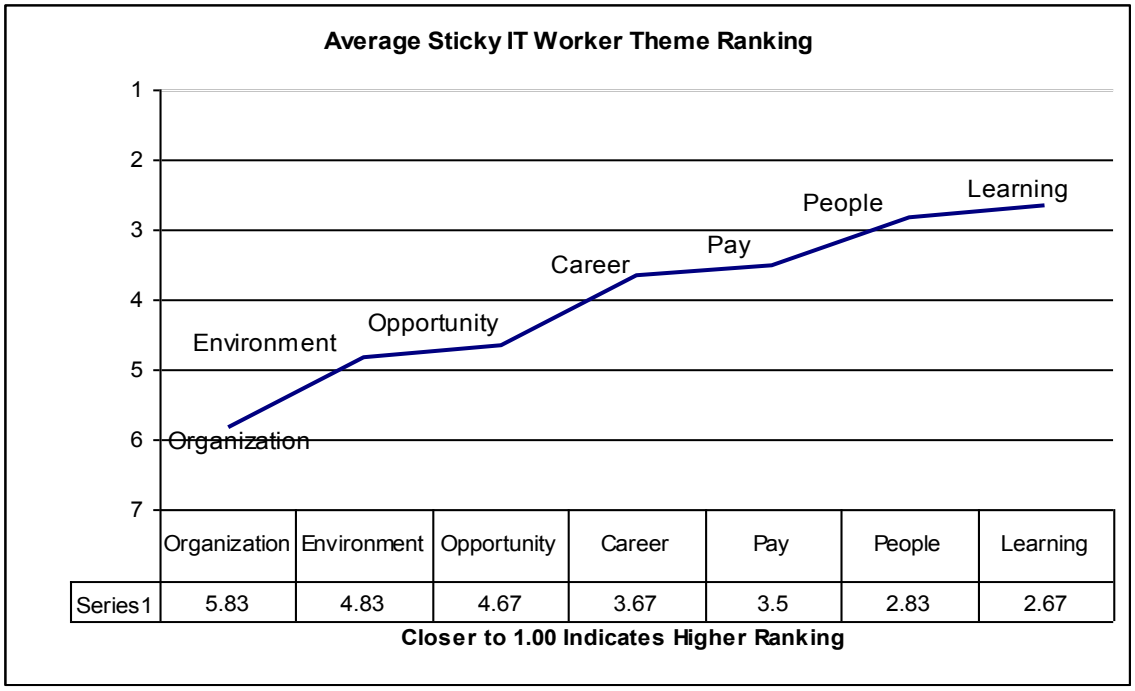


Figure 7. **Subject Theme Ranking (1 to 7)**

Separating event from effect.

The research interview processes employed the multiple why's approach suggested by Heath and Heath (2007) to ask the question "why stick" at least four times (Appendix E). This long and layered thinking required research subjects to uncover and articulate the big and small reasons they stick with one organization (like peeling an onion to find the core) and use their System 2 (logical, analytical) cognitive skills (Kahneman, 2011) thus identifying sticky IT worker theme events. Then the fifteen question validation, valuation, and ranking survey, required use of the research subjects' System 1 (reactive, emotional) cognitive skills (Kahneman, 2011) to measure the effect of each sticky IT worker theme. Combined, the two differing types of thinking informed a more holistic discovery process and lead to deeper understanding of the organization qualities that are important to sticky IT workers (Giorgi, 1997). Table 10 shows the measurement difference between the sticky IT worker discovery events and their effects.

Table 10

Sticky IT Worker Theme - Phenomenological Separation

Importance	Interview (Event)	Survey (Effect)
Theme 1	Learning	Learning
Theme 2	People	People
Theme 3	Opportunity	Pay
Theme 4	Career	Career
Theme 5	Organization	Opportunity
Theme 6	Pay	Environment
Theme 7	Environment	Organization

Sticky IT worker theme contexts.

The first important sticky IT worker theme is learning. The theme contains the most words and the highest word count across many synonyms or contextual

descriptions. This suggests that learning matters broadly across the sticky IT workers' organization choices. That is, learning applies to knowing and doing both current and different skills. Subject quotes that support the learning theme include "to learn new things is a big thing for my job satisfaction," "the ability to continue to learn more skills," "I continue to grow and learn here," and "they encourage you to continue to learn."

People is the second theme that IT workers value, and though learning is the biggest theme based on word count, the people theme is the most obvious. The word *people* is used 26% more frequently than the number two word. It is also worth noting that "people" is the only word used by all subjects and is one of the markers that helped identify research saturation. The people theme's obviousness also comes from the scope of its importance given that every subject valued the people they work with (their team) and every subject ranked people as very important on the Likert scale. This is the only sticky IT worker theme to meet both of those valuation milestones (see Table 10 and Figure 6 above).

The third important sticky IT worker theme is pay. This theme title is tricky as it might cause thoughts of disproportionately higher salaries or never-ending attempts to equate market rates with existing organization roles. However, the pay theme context more closely aligns with Ghapanchi and Aurum's (2011) description of reward, fairness, benefits, and meeting one's needs. Research subject contexts used in supporting the pay theme include "I think a big part of it is pay," "we do have fairly good benefits," "they do not do is consider market value to make pay fair," "There are a lot of big companies in the area that pay a lot better," "I think the main cause is not the pay," and "paying for the

education was a big thing." Does pay matter? Of course it does. However reading the contexts of the pay theme, money (a direct salary) is not the only consideration.

The fourth important sticky IT worker theme is career. Research subject contexts for the career theme include "the flexibility to paint your own career path," "take on different responsibilities and grow your career," "a big thing for my job satisfaction," "my career was on hold and I thought would be the in the same place forever, that has changed now," and "defining my career and moving forward." These contexts exemplify control over ones' own future or what Gaylard et al. (2005) described as empowerment.

It is worth noting that two subjects did not consider career to be an important theme in the validation survey however, only one of those subjects ranked career last in the ranking survey. The other subject ranked career fifth, ahead of organization and opportunities. This rating and ranking misalignment is limited but may provide future research opportunities, perhaps with the introduction of another selection, which was not available in this ranking survey. The misalignment also helps demonstrate separation between the phenomenological event and its effect (Giorgi, 1997).

The fifth important sticky IT worker theme is opportunity. Upon reading the theme title, some confusion may arise because opportunity might logically seem to roll up into other themes such as pay, learning, or career. However, through the interviews, subjects spoke of opportunity as its own condition in the form of a possibility for change. Some change was directed at changing organizations while other change focused on new projects or simply not doing the same work repeatedly forever. The research subject's contexts supporting opportunity as a phenomenological event include "the opportunity to take on new tasks," "the opportunity for growth," "the opportunity to take on additional

responsibilities," "this gives me the opportunity to be hands on, more analytical, to be good at one thing," "you have opportunities to move around into different areas into different roles and take on different responsibilities," and "opportunity for new technology." Sticky IT workers want more, new, and different tasks. These are employees asking for more work not less and organizations with IT workers that stick, give them more (Wexler, 2001).

The sixth important sticky IT worker theme is environment and captures the language expected when describing a work environment including work hours, the feel of the space, supportive policies, and the location of the office or factory or lab, the area. Research subjects' contextual excerpts include "a good working environment," "a great environment to be in," "the best work environment," "a culture that you want to stay in." "a nice physical work environment, a pretty campus, it is nice to walk to meetings" It is worth noting that the environment contexts here do not align with those suggested in the literature that include family and friend support, perceived alternatives, and technology advancement. (Ghapanchi & Aurum, 2011).

The final important sticky IT worker theme is organization. It is worth noting that two subjects did not consider organization to be an important theme in the validation survey. This might cause anxiety for organization leaders and architects given that the theme includes organization structures and management, two factors that organization leaders and architects can readily control. However, it might also be viewed as a bright spot in that it is the last item on the sticky IT workers' list of important organization qualities and therefore might tolerate more errors without affecting IT worker retention.

Research subjects' contexts for the organization theme include "often your voice is not being heard as much as the male engineers...when the organization is letting that happen I am usually cooling off and I start looking to go somewhere else," "the organization will support you," "the organization is stable" "management in the organization," and "the managers... are a reason I stay in certain groups within this organization." This last place in the phenomenological effect ranking should not imply that organization structures, management or other organization components are not important, just that out of seven themes one of them had to be last.

What makes a sticky IT worker – Summary.

Discovering and describing the organization qualities that are important to sticky IT workers provides organization architects and leaders insights into retaining their second or third highest paid group of employees (BLS, 2010). Given that IT workers are first humans, the organization qualities that cause a specific IT worker to stick may be as unique as a fingerprint. However, the data supporting this phenomenology show that IT workers do share common thoughts regarding the importance of seven organization qualities. When asked to validate, value, and rank the seven themes that emerged through this research, only two themes (career and organization) received a single "no" response and only one theme (organization) received a "Not Important At All" response in the Likert valuation.

One other observation regarding the sticky IT worker theme rankings, a review of Figure 7 shows the learning and people themes combine to form the highest of three theme pairs where the scores within the pairs are separated by 5.6%, 5.3% and 4.3% yet the scores between pairs differ by 23.7% and 25.1% respectively. For a quick evaluation

of the separations between pairs, simply look at the first number in each pair. Pair 1 (learning and people) begins with a 2, pair 2 (pay and career) begins with a 3, and pair 3 (opportunity and environment) begins with a 4. Understanding that rankings closer to 1 are better, these immediately recognizable separations might provide a prioritized map of alternatives for architects and leaders as they work to create organizations that attract and retain sticky IT workers. For example, if leaders cannot address learning within the organization, the next best organization quality to address appears to be people, because people scored just 5.6% lower in the rankings while the next highest ranking (pay) scored 23.7% lower. Thus working within the pairs might offer nearly equivalent value to IT workers while providing organization leaders and architects greater flexibility or choice.

Lastly, the themes ranked against one another suggest that sticky IT workers value learning, people, pay, career, opportunity, environment, and then organization (listed first to last). From a one-step removed perspective, the data show that five of the seven themes including learning, people, pay, environment, and opportunity (listed in ranked order) are important to *all* of the sticky IT worker subjects interviewed. For organizations working to increase IT worker retention, these themes, discovered through phenomenological study, might provide a prioritized starting point.

Chapter 5 - Discussion

An organization event that occurs 606,402 times per year is likely to be worthy of research. When each of these events costs $36,860 to $147,440 (Bureau of Labor Statistics, 2010; Gaylard et al., 2005; Von Hagel & Miller, 2011) the event becomes more research worthy. The event described is IT worker departures from U.S. organizations. The goals of the research presented here include reducing the numbers of IT worker departures by helping organizations become places where IT workers want to stick which reduces the costs of replacing IT workers to improve organization bottom lines. In addition, this research provides an alternative to the postmortem research processes that occur after a valuable employee has left or declared intent to leave.

Ghapanchi and Aurum (2011) listed more than 70 IT worker turnover determinants emerging from 26 researchers or teams of researchers (Appendix I), however, they did not list one reason IT workers choose to stay. This after-the-fact approach implies that avoiding practices that negatively impact IT workers will increase their work tenures (Adams & Demaiter, 2008; Gaylard et al., 2005; Mak &Sockel, 2001; Mitchell et al., 2001; Niederman, Summer, & Maertz, 2007; Rong & Grover, 2009; Rouse, 2001; Slaughter & Ang, 2002; Von Hagel & Miller, 2011).

For organization architects and leaders seeking to reduce IT worker turnover the positive approach presented here, discovering why IT workers stick, may prove more valuable than asking why they leave. Seven themes emerged from this research to suggest

IT workers apply a multi-factor process that weights organization qualities to support the workers' decision to stick. This research provides a ranked list of organization qualities to investigate or replicate in order to increase IT worker tenures, rather than a list of seventy or more things organizations should not do in an effort to decrease IT worker turnover. The increased value of this appreciative inquiry into reducing IT worker turnover is supported by Heath and Heath's (2013) suggestion, that to solve a problem, begin by looking for someone who has already solved it before you. In other words, if you want your IT workers to Stick, look to those who stick for answers.

Discoveries

The research presented here began by limiting the IT workers allowed to participate. The five filter pre-qualifications – worked for at least two organizations in an IT role, sixty-two months tenure in current role, for-profit organization, more than 50 employees in the organization, separated IT functions – produced a research subject pool of sticky IT workers. Then, following the phenomenological processes suggested by Giorgi (1997) the *events* that are important to sticky IT workers were allowed to emerge through interview, transcript, and data revisiting processes and were delivered back to the research subjects to value their *effects*. The effects of the phenomenon (outcomes of the research subjects' valuations), form the basis of the analysis presented here.

To discover the organization qualities that contribute to sticky IT workers' employment decisions, validated interview transcripts were added to a master document divided by research questions and segmented by subject (person). Word counting and

filtering using the online Wordle tool (http://www.worlde.net), Microsoft Word, and Microsoft Excel as well as interview transcript review guided the emergence (discovery and understanding) of seven sticky qualities and their supporting contexts. As more interviews were completed, the language used to describe why IT workers stick provided fewer and fewer new insights until the fifth and sixth interviews demonstrated topic saturation by providing no original insights.

In ranked order, learning, people, pay, career, opportunity, environment, and organization are organization qualities important to sticky IT workers. Moreover, these organization qualities matter in closely valued pairs with learning and people separated from pay and career by 23.7%, while the opportunity and environment pair ranked another 25.1% lower in importance by sticky IT workers. The emergence of these themes and the importance gaps between sticky IT worker theme pairs suggest organization leaders and architects begin imitation efforts with the highest-ranking qualities in order to increase IT worker tenures.

Literature Similarities

Understanding IT workers' organization membership (employment) choices will benefit from continued research (Ghapanchi & Aurum, 2011; Janz & Nichols, 2010; McKnight et al., 2009). The research presented here adds affirmative insights to the IT worker literature. Moreover, while the research processes is designed to seek positive organization qualities rather than reasons to quit, there is some alignment between the

discovered sticky IT worker themes and the dominant postmortem turnover event based literature.

Learning is the highest ranked sticky IT worker theme to emerge from this positive phenomenological research and is supported by research subject contexts such as "to learn new things is a big thing for my job satisfaction," "this ties back into the opportunities for growth and continued learning," and "learning it is very challenging but also very, very satisfying." Rong and Grover (2009) suggest IT workers are more satisfied when new knowledge acquisition and application opportunities are part of the work, a process named knowledge renewal. Ghapanchi and Aurum's (2011) list of IT worker turnover determinants includes education, training, and task variety. However, the term used to describe why the absence of learning in an organization contributes to turnover is the "threat of professional obsolescence" (Ghapanchi & Aurum, 2011, p.244). IT workers value learning as a way to enhance their current work assignment and to prepare for the future. Moreover, McKnight et al. (2009) suggest that personnel that do not receive training from the business are less likely to be tied to their workplace. In other words, sufficient learning and training can improve IT worker stickiness.

The second ranked sticky IT worker theme is people. The people theme emerged from contexts including "The big thing for me has been the team of people that I work with," "the people, that is going to be a big one," and "surrounded by all these good smart people that you can learn and grow with." Mitchell et al.'s (2001) Job Embeddedness research also includes people as an employment decision input and organization quality. Mitchell et al. (2001) suggest an embeddedness theme labeled Individuals that includes "people, teams, and groups" (p.1102). In addition, people are considered in Rouse's

(2001) description of social pressures leading to voluntary turnover where rather than acting as a positive force for the organization, they introduce recruiters to other IT workers. Referring to the Ghapanchi and Aurum (2011) list of IT worker turnover determinants, the people theme is captured through a relationship with others, organization citizenship, and socialization as turnover drivers.

Pay is the third ranked sticky IT worker theme to emerge and is supported by research subject contexts such as "different experiences obviously but a big reason is money," "getting offered a lot higher salary and that was really intriguing," and "now that we are getting pay increases again, I am even happier." The Ghapanchi and Aurum (2011) list of IT worker turnover determinants includes pay satisfaction and refers this as an internal (self) satisfier as it relates not to a specific pay amount but rather the opportunity to earn more in another role or organization. McKnight et al. (2009) also support the pay theme as structural fairness contributor to IT worker turnover intention where fairness is more than the amount, it also includes an evaluation of other's pay. Rong and Grover (2009) also address pay as an extrinsic organization structure related to job satisfaction where others (e.g. supervisors) can affect IT workers' job satisfaction levels and influence the workers' tenure.

Understanding that this pay perspective emerged from and is valued by for-profit IT workers with more than a decade of experience on average, organization architects and leaders might note only half of contexts involve cash compensation. The remaining contexts address IT workers' overall life needs including benefits and education. These IT workers recognize the value of indirect compensation such as better benefits packages or paying for continued education.

The fourth sticky IT worker theme is career. The career theme emerged from contexts including “grow your career how you envision it and set yourself up for the future,” “I feel fulfilled; I can keep growing in a sense of defining my career and moving forward,” and “this is a field I want to stay in.” Career provides the most frequent alignment with the Ghapanchi and Aurum (2011) list of IT worker turnover determinants as the list includes career advancement, career concern, career orientation, and career satisfaction as well as job alternatives, job attraction, and task identity. Slaughter and Ang (2002) also support career as an IT worker turnover driver however their view aligns more closely with the research presented here in that Slaughter and Ang’s research focused on retaining IT workers rather than asking why they departed. Slaughter and Ang (2002) suggest that organizations can increase IT worker retention for their industrial/loyal worker classification by addressing career issues. Janz and Nichols (2010) provide another unique view into IT worker’s careers by suggesting the traditional view of organizations suffering financial burdens without the right IT workers and then also suggesting that organizations play an active role in developing IT worker careers. However, Janz and Nichols (2010) do not limit career management to workers already in IT, rather they suggest a homegrown approach to train and develop other workers to transition into IT roles. This suggestion not only supports the sticky IT worker career theme, it also supports organizations taking an active rather than passive role in creating or managing the qualities that increase IT worker tenures

Opportunity is the fifth ranked sticky IT worker theme to emerge and is supported by research subject contexts such as “my career was on hold and I thought would be the in the same place forever; that has changed now,” “this opportunity popped up and I

grabbed it so I decided to stay," "this opportunity for new technology," and "the opportunity to learn." Niederman et al. (2007) support organizations acting on opportunity and opportunity awareness to reduce IT workers' voluntary turnover rates by making IT workers fully aware of the work or advancement opportunities and other positive factors in the current organization. Here, the literature supports an active role for organization leaders. Moreover, Niederman et al. (2007) also support awareness through conversation and information sharing as a positive influence on reducing IT worker turnover, which also aligns with prior suggestions in this research that open discussion of an organization quality can reduce any negative views of that quality. Wexler (2001) states, "opportunity buys loyalty" (p.40) from IT workers and "having the opportunity to rotate projects frequently and working with top IT talent" keeps IT workers connected to the organization. Reaching further into the words supporting the opportunity theme, the Ghapanchi and Aurum (2011) list of IT worker turnover determinants includes work-family time and boundary spanning.

The sixth sticky IT worker theme is environment and emerged from contexts including "they are working to provide a good work environment," "it was no longer a great environment to be in," "enjoy your work and your work environment and keep you happy," and "a big cafeteria and a gym." This theme is the only theme that does not exist on Ghapanchi and Aurum' (2011) list of IT worker turnover determinants. However, Thatcher et al. (2002) address the work environment as an external factor contributing to IT worker turnover intentions and Wright and Bonett (1993) suggest that employees expect to work in an environment that satisfies their needs. Moreover, Lee and Mitchell

(1994) suggest that employees may stay with the organization for other, more utilitarian, reasons captured in the environment theme.

Organization is the seventh and final sticky IT worker theme to emerge and is supported by research subject contexts such as “no real commitment to the organization,” “in the IT organization that was supporting internal customers,” “eliminate organizational complexity and develop leadership,” and “I go to my manager and say this is urgent I need help and my manager was able to contact other mangers and provide other resources.” The organization theme is included in several IT worker studies including McKnight et al. (2009) who suggest IT workers are loyal to their profession but act to stay with a supporting organization. Von Hagel and Miller (2011) suggest that organization fit and sacrifice contribute to IT worker turnover. Allen et al. (2008) use the term Perceived Organization Support (POS) to describe organization qualities such as role and conflict management that organization leaders can actively manage. Moreover Allen et al. (2008) suggest that 62% of the reasons IT workers leave are controllable by the organization. Finally, Ghapanchi and Aurum (2011) suggest organization structures can alter 54% of the reasons IT workers leave, without adding organization costs.

Literature connections.

This sticky IT worker research did not produce results that were outside the range of other organization research. Broadly, Mak and Sockel (2001) suggest that IT workers turnover intent decreases with improved job satisfaction. This suggestion also makes sense given that humans seek satisfaction and our minds guide us toward the easiest way to achieve it (Kahneman, 2011). Alternatively, Lee et al. (1999) suggest that workers leave even when they are happy which Rouse (2001), Niederman et al. (2007), and

Adams and Demaiter (2008) further supported by identifying external factors including social pressures, unsolicited job offers, and personal networks as contributors to IT worker attrition.

The broad to specific findings in the Literature Similarities section describe the reasons IT workers leave, which has been the focus of the limited amount of IT worker employment research to date. The research presented here provides an affirmative perspective by asking why IT workers stay. Why do they stick? As such, interesting IT worker priorities emerged to add to the literature. The highest priority theme here, learning, finds support in Rong and Grover's (2009) suggestion that IT workers are more intrinsically and extrinsically satisfied when new knowledge acquisition opportunities are part of the work. Rong and Grover state, "Knowledge renewal is both important for IT professionals and critical in maintaining the competitiveness of the organization" (2009, p.376). Additional support for the learning theme's number one ranking also comes from Slaughter and Ang's (2002) defining two different IT worker views of work, organization specific (industrial / loyal) or skill specific (craft / mobile) where the craft (hands-on) worker increases her/his value by acquiring new skills to sell.

Missing from Slaughter and Ang's (2002) discussion are the actions an organization might take to transition or align the craft IT workers into longer-term employees rather than lose them. The research presented here provides a ranked list of organization qualities that contribute to the transition of IT workers into sticky IT workers. Organization leaders and architects applying the sticky IT worker themes should also recognize that the discoveries and rankings presented here emerged from a cross-

section of IT workers from different organizations, with varied experiences levels, filling a variety of IT roles.

The seven sticky IT worker themes aligned with prior investigations and inquiries into factors (organization qualities) that influence IT worker tenures. However, with two exceptions Niederman et al. (2007) and Janz and Nichols (2010), the existing literature addresses the negative application or outcomes of organization qualities rather than the positive. That is, there are many authors telling organization leaders and architects what not to do while Janz and Nichols (2010), Niederman et al. (2007), and I offer guidance for what to do. Moreover data offered here is based on the positive feedback from IT workers whose organization tenures are already at least one standard deviation beyond the norm

The positive focus of this research finds support from Schein's (2004) discussion of the norms that survive in an organization where one mechanism for learning those norms is positive problem solving. To create more sticky IT workers the ranked list of organization themes offers organization leaders a list of positive norms to replicate. Additional support for the positive focus of this research comes from Wren and Bedeian's (2009) suggestion that since the industrial revolution three methods have been used to produce outcomes that benefit the organization. The methods are carrot, stick, and new. New means start clean with no historical reference, stick means focus on negative inducements, and carrot means focus on positive inducements. The seven sticky IT worker themes suggest positive inducements that lead to longer IT worker tenures.

The positive focus of this research also aligns with Swanson and Holton's (2009) suggestion that human resource development should focus on positive intentions for

improving "individuals, teams, work processes, and the overall organization" (p.13). Moreover, Swanson and Holton (2009) discuss changing the perspective of an issue from a weakness (i.e. the negative things an organization should not do) to a strength (i.e. here are things to do instead) can produce better results for the organization. Swanson and Holton (2009) also suggest framing desired outcomes as questions (e.g., what would my IT workers value after working here more than five years?) The research presented here provides seven possible answers.

Implications for Organization Leaders and Architects

The discovery of seven sticky IT worker themes and their weighted ranking provides immediate value to organization leaders and architects by suggesting a starting point, a broad map of qualities to improve or accentuate in order to increase IT worker tenures. Rather than working to change their organization seventy ways (Ghapanchi & Aurum, 2011) to reduce turnover, organization leaders might apply the seven sticky IT worker themes to increase retention. Moreover, the seven themes might provide current worker development selection filters as organizations seek to grow their own IT workers (Janz & Nichols, 2010). Due to the limited number of subjects and the phenomenological foundations of this research, organization leaders and architects should use these findings as directional or instructive and apply the method and tools presented here to discover what makes IT workers sticky in their own organization.

Another valuable outcome of this research is a repeatable research method that now includes pre-defined questions (Appendices E and L), analysis tools, a documented process (Chapter 4), and the findings here that serve as a sticky IT worker benchmark. Organization leaders and architects can reuse the method and tools presented here to discover specific organization qualities their workers consider important as a way to focus development efforts on the things they are already doing right (Schein, 2004; Swanson & Holton, 2009; Wren & Bedeian, 2009).

No new organization qualities were discovered here, however the organization qualities rankings may not align with prior research. For example, the literature review includes suggestions from Mak and Sockel (2001), Rouse (2001), Gaylard et al. (2005), Allen et al. (2008), Von Hagel and Miller (2011), and Ghapanchi and Aurum (2011) that organization and organization structures are primary reasons for IT worker attrition. So, what is different in this research that might have caused the importance of organizations and structures to almost miss consideration entirely? One answer is the small sample size. While Creswell (2007) supports qualitative research samples ranging from 3 to 30, and Moustakas (1997) suggests a phenomenology might contain only one sample, Jones and Kottler (2006) state that a small sample size "decreases the odds that the sample truly represents the target population"(p.69). In other words, randomness and selection bias likely contribute the low ranking of organizations and organization structures as contributors to IT worker stickiness (Newton & Rudestam, 1999).

A second answer might be the research subject filters supported by the BLS (2010) data. By accepting only research subjects who passed five pre-qualification tests - worked for at least two organizations in an IT role, sixty-two months tenure in current

role, for-profit organization, more than 50 employees in the organization, with separated IT functions – the findings here may represent the thinking of a very specific IT worker type, which limits the generalizability of the research findings. However, the question for organization leaders and architects might be, would you rather create an organization that attracts and retains this very specific sticky IT worker type, one that stays at least one standard deviation beyond the norm, or is average good enough for your organization?

Organizations wanting to develop IT workers into those who can offer a positive perspective, and stay at least one standard deviation beyond the norm, now have a basis to suggest that though sticky IT workers may not value different organization qualities, they value those qualities differently. Organization leaders and architects might focus on those value differences as they work to increase IT worker retention.

Study Risks and Limitations

Organizing data created by field research including pages of transcripts, handwritten notes, and data tracking spreadsheets can overwhelm the researcher (Rudestam & Newton, 2007). Each discovery act or description processed introduces the opportunity for errors (Hoepfl, 1997). The approved research plan addresses three types of reliability and validity errors identified by Kirk and Miller (1986). Type 1 errors occur when the researcher interprets relationships that do not exist. Conversely, Type 2 errors occur when the researcher rejects relationships that do exist. Type 3 errors occur when the researcher asks the wrong questions.

For this research, the subjects were asked to confirm the interview transcripts and validate the theme discoveries (Figure 4 and Table 9). These processes supported the triangulation efforts defined by Cohen et al. (2003) to reduce type 1 and 2 errors. To reduce Type 3 errors the research employed a pre-qualification process for research subjects (Appendix D) to ensure the questions were relevant to the research subject. Moreover, the research adhered to a predefined set of expert reviewed questions (Appendix E) to prevent script deviation and irrelevant data gathering. Furthermore, emergent phenomena alignment and agreement were confirmed through validation surveys to reduce type 3 errors (Figures 5 and 6). Lastly, to ensure the relevant data collection and the right questions were asked of each research subject, the last two questions were "Is there any other information I should know about why you have stayed with your current employer?" and "Is there any question I should have asked?"

Though all of the error reduction processes were followed, a type 1 error may exist in the data. The organization theme's low rank may be artificially high due to the research questions unintentionally introducing the term *organization* into the subjects' responses based on the frequency of the word organization appearing in the scripted questions. During the interviews, the word organization was used at least six times to provide thinking contexts. Simply hearing the word so often over a short time period (no more than 57 minutes) may have created a sense of familiarity or comfort (Kahneman, 2011) with the word organization such that the subjects began to mimic or repeat the word. If this is true, it does introduce one more analysis point or observation. Without the organization theme, organization structures (groups and management) would not have clustered into any other theme and therefore would not have been a part of the validation,

valuation, and ranking survey. This suggests those structures may not be as important to sticky IT workers and opens another avenue for future research.

In addition to the research risks described above, my role as an IT executive with a professional as well as academic interest in the research might also be viewed as a risk. This additional interest was recognized and mitigated through anonymity and awareness. That is, the research subjects did not know my role as an IT executive and I maintained awareness throughout the research process to limit any professional influences on the research processes.

Finally, because this research focused on the discovery and description of organization qualities that a very narrow set of sticky IT workers' valued, the results may not apply to other workers outside of the research criteria, those with less than sixty-two months tenure in a for-profit organization with at least fifty employees, etc. Changing any of these limitations provides further opportunities for future research.

Future Research

One extension of this research would be to apply the processes to other types of employees, not IT workers, where employee attrition is a concern. Another extension of the research would be to change the standard deviation qualifier to two in order to compare the outcomes between 1SD and 2SD sticky IT workers. Assuming 1SD and 2SD sticky IT workers value the same things, the validation, valuation, and ranking survey (Appendix L) can provide a quick confirmation and ranking assessment. A third research extension would be to interview new-hire IT workers and archive their answers until they

become sticky IT workers, then re-interview the worker and analyze for change over time to discover how the organization may have changed the IT worker (Swanson & Holtom, 2009). Another extension of the research would be to apply the research processes, pre-defined questions, and analysis tools, developed here to a larger sample and compare the results. Lastly, to develop deeper understanding of each theme and its contribution among the multiple themes discovered here, future sticky IT worker research might also examine the relationships between the themes and within the theme pairs.

Conclusion

Only known answers are written (Husserl & Carr, 1970; Moustakas, 1994). In discovering answers to the question "why stick," this research sought new (unwritten) answers to the phenomena of IT worker stickiness by focusing on positive side of the IT worker employment choice, then presented the findings in seven ranked themes, and suggested that sticky IT workers do not value different organization qualities rather they value organization qualities differently.

This research also provides organization leaders and architects with set of tools and processes to discover the positive qualities in their own organizations in order to drive change through positive improvement filters (carrots) rather than negative filters (sticks) (Schein, 2004; Swanson & Holton, 2009; Wren & Bedeian, 2009). Finally, this research supports and adds to the existing organization literature as well as extending it one study further into the space of the Information Technology worker.

* Data Adjustment Notes. To facilitate better word, cluster, and theme analysis, raw data were altered in the following ways. 1-Through word clustering and theme development the singular and plural version of any word were combined and the total usage count modified to reflect both version of the word. 2-The downloaded data from the survey provider included special characters to indicate a space between numbers (e.g., 15-1139 15-1140 appeared as 15-1139Â15-1140). The special characters were removed for analysis. 3-Based on a yes answer to the final survey question "are you still working with the same employer referenced during the telephone interview for this research," current tenures were updated to reflect the time between interview and the final survey. The tenure months updates were A+3, B+3, C+3, D+3, H+1, I+1. 4- Numbers were limited to two decimal places for Microsoft Excel calculation

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Appendix A

Standard Occupation Codes for Information Technology Occupations
March 11, 2010

15-0000 Computer and Mathematical Occupations
15-1100 Computer Occupations
15-1110 Computer and Information Research Scientists
15-1111 Computer and Information Research Scientists
15-1120 Computer and Information Analysts
15-1121 Computer Systems Analysts
15-1122 Information Security Analysts
15-1130 Software Developers and Programmers
15-1131 Computer Programmers
15-1132 Software Developers, Applications
15-1133 Software Developers, Systems Software
15-1134 Web Developers
15-1140 Database and Systems Administrators and Network Architects
15-1141 Database Administrators
15-1142 Network and Computer Systems Administrators
15-1143 Computer Network Architects
15-1150 Computer Support Specialists
15-1151 Computer User Support Specialists
15-1152 Computer Network Support Specialists
15-1190 Miscellaneous Computer Occupations
15-1199 Computer Occupations, All Other

15-2000 Mathematical Science Occupations
15-2010 Actuaries
15-2011 Actuaries
15-2020 Mathematicians
15-2021 Mathematicians
15-2030 Operations Research Analysts
15-2031 Operations Research Analysts
15-2040 Statisticians
15-2041 Statisticians
15-2090 Miscellaneous Mathematical Science Occupations
15-2091 Mathematical Technicians
15-2099 Mathematical Science Occupations, All Other

Source http://www.bls.gov/soc/2010/soc150000.htm Retrieved June 27, 2012

Appendix B

Information Technology Occupations Standard Occupation Codes Chart
February 10, 2010

15-1111	Computer and Information Research Scientists	Conduct research into fundamental computer and information science as theorists, designers, or inventors. Develop solutions to problems in the field of computer hardware and software.
15-1121	Computer Systems Analysts	Analyze science, engineering, business, and other data processing problems to implement and improve computer systems. Analyze user requirements, procedures, and problems to automate or improve existing systems and review computer system capabilities, workflow, and scheduling limitations. May analyze or recommend commercially available software.
15-1122	Information Security Analysts	Plan, implement, upgrade, or monitor security measures for the protection of computer networks and information. May ensure appropriate security controls are in place that will safeguard digital files and vital electronic infrastructure. May respond to computer security breaches and viruses. Excludes "Computer Network Architects" (15-1143).
15-1131	Computer Programmers	Create, modify, and test the code, forms, and script that allow computer applications to run. Work from specifications drawn up by software developers or other individuals. May assist software developers by analyzing user needs and designing software solutions. May develop and write computer programs to store, locate, and retrieve specific documents, data, and information.
15-1132	Software Developers, Applications	Develop, create, and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Design software or customize software for client use with the aim of optimizing operational efficiency. May analyze and design databases within an application area, working individually or coordinating database development as part of a team. May supervise computer programmers.
15-1133	Software Developers, Systems Software	Research, design, develop, and test operating systems-level software, compilers, and network distribution software for medical, industrial, military, communications, aerospace, business, scientific, and general computing applications. Set operational specifications and formulate and analyze software requirements. May design embedded systems software.

		Apply principles and techniques of computer science, engineering, and mathematical analysis.
15-1134	Web Developers	Design, create, and modify Web sites. Analyze user needs to implement Web site content, graphics, performance, and capacity. May integrate Web sites with other computer applications. May convert written, graphic, audio, and video components to compatible Web formats by using software designed to facilitate the creation of Web and multimedia content. Excludes "Multimedia Artists and Animators" (27-1014).
15-1141	Database Administrators	Administer, test, and implement computer databases, applying knowledge of database management systems. Coordinate changes to computer databases. May plan, coordinate, and implement security measures to safeguard computer databases. Excludes "Information Security Analysts" (15-1122).
15-1142	Network and Computer Systems Administrators	Install, configure, and support an organization's local area network (LAN), wide area network (WAN), and Internet systems or a segment of a network system. Monitor network to ensure network availability to all system users and may perform necessary maintenance to support network availability. May monitor and test Web site performance to ensure Web sites operate correctly and without interruption. May assist in network modeling, analysis, planning, and coordination between network and data communications hardware and software. May supervise computer user support specialists and computer network support specialists. May administer network security measures. Excludes "Information Security Analysts"(15-1122), "Computer User Support Specialists" (15-1151), and "Computer Network Support Specialists" (15-1152).
15-1143	Computer Network Architects	Design and implement computer and information networks, such as local area networks (LAN), wide area networks (WAN), intranets, extranets, and other data communications networks. Perform network modeling, analysis, and planning. May also design network and computer security measures. May research and recommend network and data communications hardware and software. Excludes "Information Security Analysts" (15-1122), "Network and Computer Systems Administrators" (15-1142), and "Computer Network Support Specialists" (15-1152).

15-1151	Computer User Support Specialists	Provide technical assistance to computer users. Answer questions or resolve computer problems for clients in person, or via telephone or electronically. May provide assistance concerning the use of computer hardware and software, including printing, installation, word processing, electronic mail, and operating systems. Excludes "Network and Computer Systems Administrators" (15-1142).
15-1152	Computer Network Support Specialists	Analyze, test, troubleshoot, and evaluate existing network systems, such as local area network (LAN), wide area network (WAN), and Internet systems or a segment of a network system. Perform network maintenance to ensure networks operate correctly with minimal interruption. Excludes "Network and Computer Systems Administrators" (15-1142) and "Computer Network Architects" (15-1143).
15-1199	Computer Occupations, All Other	All computer occupations not listed separately. Excludes "Computer and Information Systems Managers" (11-3021), "Computer Hardware Engineers" (17-2061), "Electrical and Electronics Engineers" (17-2070), "Computer Science Teachers, Postsecondary" (25-1021), "Multimedia Artists and Animators" (27-1014), "Graphic Designers" (27-1024), "Computer Operators" (43-9011), and "Computer, Automated Teller, and Office Machine Repairs" (49-2011).
11-3021	Computer and Information Systems Managers	Plan, direct, or coordinate activities in such fields as electronic data processing, information systems, systems analysis, and computer programming. Excludes "Computer Occupations" (15-1111 through 15-1199).
15-2011	Actuaries	Analyze statistical data, such as mortality, accident, sickness, disability, and retirement rates and construct probability tables to forecast risk and liability for payment of future benefits. May ascertain insurance rates required and cash reserves necessary to ensure payment of future benefits.
15-2021	Mathematicians	Conduct research in fundamental mathematics or in application of mathematical techniques to science, management, and other fields. Solve problems in various fields using mathematical methods.
15-2031	Operations Research Analysts	Formulate and apply mathematical modeling and other optimizing methods to develop and interpret information that assists management with decision making, policy formulation, or other managerial functions. May collect and analyze data and develop decision support software, service, or products. May develop and supply optimal time, cost, or logistics networks for program evaluation,

		review, or implementation.
15-2041	Statisticians	Develop or apply mathematical or statistical theory and methods to collect, organize, interpret, and summarize numerical data to provide usable information. May specialize in fields such as bio-statistics, agricultural statistics, business statistics, or economic statistics. Includes mathematical and survey statisticians. Excludes "Survey Researchers" (19-3022).
15-2091	Mathematical Technicians	Apply standardized mathematical formulas, principles, and methodology to technological problems in engineering and physical sciences in relation to specific industrial and research objectives, processes, equipment, and products.
15-2099	Mathematical Science Occupations, All Other	All mathematical scientists not listed separately.

Source http://www.bls.gov/soc/soc_2010_definitions.xls Retrieved June 30, 2012

Appendix C

First Level Qualified Contact E-mail with Pre-qualification Survey Link

Hi ____,

Thank you for offering to participate in this IT Worker research study. The first step is validating that your work history and roles qualify for the study. Once qualified, you will be eligible to receive full compensation. Below, you will find an overview of the research process. Specific dates are not listed because the research will largely accommodate your schedule.

The research processes should require no more than 2 hours spread over four steps.

1- Answering 11 pre-qualification questions.
   a. The process should require no more than 6 to 15 minutes
2- Qualified participants who complete each process below earn $50.00
   b. Sign and return a participant consent form
   c. A 60 minute phone conversation to answer 7 research questions
3- Reviewing and confirming the phone transcripts via e-mail
   d. The process should require no more than 15 minutes
4- Reviewing any themes captured across the interviews to agree or disagree with the research findings via e-mail
   e. The process should require no more than 20 minutes

Note - $50.00 Amazon.com gift cards will arrive via e-mail after step 4.

To continue as a research participant, please complete Step 1 above by answering 11 pre-qualification questions found here http://edu.surveygizmo.com/s3/1270494/Sticky-IT-Worker-Pre-Qualification-11-Questions

Your Assigned Interview Code is _____.

You will need the code to complete the pre-qualification survey.

Your participation is greatly appreciated.

Sincerely,

Name
Doctoral Student
p..09@georgefox.edu
xxx-xxx-x910 C
xxx-xxx-x191 F

Appendix D

Research Subject Pre-Interview Qualification and General Data

Assigned Interviewee Code _____

Please provide the following qualification data.
Place an XX on the correct line or fill in the requested numbers.

Note – There are 11 questions, please answer all questions via Survey Gizmo Link
http://edu.surveygizmo.com/s3/1270494/Sticky-IT-Worker-Pre-Qualification-11-Questions

1- Number of Months Working in IT for Your Current Organization: _____

Note – There are 11 questions on this page, please answer all questions.

2- Gender:
(Female) _____
(Male) _____

3- Current Age Range:
(16-24) _____
(25–29) _____
(30-34) _____
(35-39) _____
(40-44) _____
(45-49) _____
(50-54) _____
(55-59) _____
(60-64) _____
(65 +) _____

4- Highest Degree or Diploma Completed:
(High School) _____
(Associates Degree) _____
(Bachelors Degree) _____
(Masters Degree) _____
(Doctorate) _____

5- Based on the SOC Job Code labels (below), list your prior IT roles (past or current organization) and the duration (in months), beginning with your current IT role and working backwards.

EXAMPLE : SOC Job Code 15-_1150__ for _19___ months

Current SOC Job Code 15-_____ for _____ months

If Current Role = 15-1199 above, please list Job Title in this SOC Code box.... If not, please continue to box below. _____ for _____ months

Prior SOC Job Code 15-_____ for _____ months

Prior SOC Job Code 15-_____ for _____ months

Standard Occupation Codes (SOC) for Information Technology Occupations

15-1110 Computer and Information Research Scientists
15-1120 Computer and Information Analysts
15-1121 Computer Systems Analysts
15-1122 Information Security Analysts
15-1130 Software Developers and Programmers
15-1131 Computer Programmers
15-1132 Software Developers, Applications
15-1133 Software Developers, Systems Software
15-1134 Web Developers
15-1140 Database and Systems Administrators and Network Architects
15-1141 Database Administrators
15-1142 Network and Computer Systems Administrators
15-1143 Computer Network Architects
15-1150 Computer Support Specialists
15-1151 Computer User Support Specialists
15-1152 Computer Network Support Specialists
15-1190 Miscellaneous Computer Occupations
15-1199 Computer Occupations, All Other

SOC code definitions are available @ http://www.bls.gov/soc/soc_2010_definitions.xls

6- Is the organization a Government Agency or "Non Profit" [IRS 501c3 or 501c4] entity?

(Yes) _____
(No) _____

7- Where is the organization located? _____- _____ (Zip Code)

8- Approximately how long has the organization existed? _____ (Years)

9- Does the organization employ 50 or more people?

(Yes) _____

(No) _____

10 - Does the organization separate the IT or information management roles? In other words, is there a dedicated IT staff with special permissions, tools, and training to mange the computers, software, networking, etc.?
(Yes) _____
(No) _____

11- Which of the North American Industry Classification System (NAICS) codes listed below best describes the organization's business function?

NAICS CODE = _____

11	Forestry, Fishing and Hunting, and Agricultural Support Services (NAICS 113-115)
21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information
52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Food Services
81	Other Services (except Public Administration)
99	Not Classified

NAICS code definitions are available @ http://www.census.gov/eos/www/naics/

Appendix E
Structured Interview Questions

Assigned Interviewee Code _____

Confirmed signature or acknowledgement of approved Human Subjects Consent form Appendix J).

You have worked in an IT role at your current organization for _____ (years / months) and worked at more than one organization in an IT role, correct?
[Confirming Resume Data]

One feature of the IT industry is frequent organization / employer changing or turnover. Why have you stayed with your current organization for _____ (years / months)?
[Initiating IT work, turnover, and personal action thinking]

Over the ____ years, when have you considered going to work somewhere else?
[Initiating memories of situations that challenged the stay decision]

When did you most recently look for work in another organization?
[Initiating new opportunity thinking]

Why did you choose to stay with your current organization?
[Initiating opportunity and current organization comparisons]

What might another organization offer to cause you to choose working somewhere else?
[Initiating organization flaws, personal needs, and ideal job thinking]

If your current organization does not offer you these things, why have you stayed more than 5 years?
[Initiating ideal comparisons]

As an experienced IT worker, capable of working for many organizations, why do you think you choose to stay with your current organization?
[Initiating current choice analysis]

Is there any other information I should know about why you have stayed with your current employer?

Is there any question I should have asked?

Probe Questions To Encourage Data Emergence

To address concepts or words associated with volunteered phrases that align with Gaylard, Sutherland, and Viedge's (2005) seven work-life factors:

Could you give me an example of what you mean by ___ (work-life quality), so that I might better understand?

Appendix F
Phenomenology Overview

Phenomenology is a philosophy or method of inquiry based on the premise that reality consists of objects and events as they are perceived or understood in human consciousness and not of anything independent of human consciousness (*The American Heritage® Dictionary of the English Language,* 2006*).*

Phenomenology has existed for more than 30 years as a viable "qualitative form of inquiry... [for] studying human phenomena... It has a relatively long history of research that has produced a body of valuable insights" (Hein & Austin, 2001, p.3). Phenomenology is "distinguished from, and related to, the other main fields of philosophy: ontology (the study of being or what is), epistemology (the study of knowledge), logic (the study of valid reasoning), ethics (the study of right and wrong action), etc." (Smith, 2011, section 1, paragraph 2). Phenomenology is simply "a qualitative form of inquiry... [providing] a valuable and practical means of studying human phenomena" (Hein & Austin, 2001, p.3). Phenomenology "studies the structure of various types of experiences ranging from perception, thought, memory, imagination, emotion, desire, and volition to bodily action, and social activity..." Smith, 2011, paragraph 11).

Description

It is not possible for every human to do every thing in life, yet by conveying the experiences of others, phenomenology provides shortcuts to understanding without participation. Describing an event to another human in a way that s/he can share the moment, learn from the experience, or make personal decisions based only on words, is a skill undiscovered in other species and is the basis of phenomenology. Through the

application of a simple matrix, the phenomenologist can capture events, separate outcomes from causes, interpret meaning, and describe the experience in ways that transfer context to those not present to experience the event (Hein & Austin, 2001; Patocka, 1999; Stern, 2001).

Phenomenology seeks the connections and contexts that convey understanding of human experiences and attempts to convey the experience so that others may know without participating (Taylor & Kaplan, 2008). Phenomenology "means the presence of any given precisely as it is given or experienced' (Giorgi, 1997, p.236), there is no judgment, only presence and the object, and they are contextually intertwined as cause and effect in one phenomenon. For example, if someone tells you the door is hot and you choose not to touch the door, you have experienced phenomenology.

Moreover, because Phenomenology is discovery, and knowledge must first be discovered, Phenomenology "is the 1st method of knowledge" (Moustakas, 1994, p.41). According to Polkinghorne (1989), phenomenology uses descriptions and analysis to discover general structures across groups of people and to capture the intentionality of their thoughts and actions (Moustakas, 1994). However, there are limits to phenomenology including the limits of description, the researchers' interpretations or biases, and the time boundaries that influence emergent perspectives (Moustakas, 1994).

Evolution of Phenomenology

The current phenomenology movement originated about 1905 driven by Edmund Husserl (Patocka, 1999). He sought to apply a consistent sequence of reasoning (i.e., science) to grasp fundamental concepts and propositions, whose content at first sight may seem commonplace, as a basis to prove and validate startling and fruitful conclusions.

Husserl's position was that data extracted to its basic form was not a proper or adequate approach to science. Data manipulated and viewed this way was not sufficient because it lacked context (Patocka, 1999).

Husserl's 1931 Phenomenology foundations defined "the task of phenomenology as describing... structures of consciousness, including their constituent parts and their interrelationships... [and] development of the concept of intentionality" (Hein & Austin, 2001, p.4). One's inability to directly separate consciousness from intention demands a filter or method to "understand the human condition as it is revealed in our concrete life circumstances" (Hein & Austin, 2001, p.4). In this "existential view, existence cannot be studied objectively but, rather, is revealed through a person's reflection on his or her own unique, lived situation" (Hein & Austin, 2001, p.4).

The modern phenomenological research approach emerged in 1975 from Giorgi. By applying processes to bracket, discipline attitude, increase awareness, yet remain in (connected) to the world while mitigating personal biases, the researcher "allows... the phenomenon to emerge from the participants' descriptions" (Hein & Austin, 2001, p.8).

Giorgi (1997) offers five "concrete steps of the human scientific phenomenological process" (p.243) including collecting data, reading the data, dividing data into parts based on meaning, organizing and expressing though language, and finally expressing a structure to support "all of the subjects in the study" (p.245). Applying the five steps guides the researcher to interpret the data, to give it a structure, to present discoveries and variances rather than merely repeat the data (Giorgi, 1997). Giorgi also reduced the number of participants (data sources) to four to six and eliminated calculations for

frequency or intersubjective checks thus relying on the general meaning (commonality) of the phenomenon and the participants specific words (Hein & Austin, 2001).

To produce empirical findings through the modern phenomenological research approach and demonstrate process rigor, Phenomenology researchers "tend to be explicit about the design of their research and the steps involved in data analysis and explication" (Hein & Austin, 2001, p.8). Phenomenology is "discovery and description" (Moustakas, 1994, p.6) which connects to the Heath & Heath (2007) suggestion that ideas stick when there is *no knowledge to overcome*. Phenomenology's application to human science confirms the description role and includes "the researcher has a personal interest in whatever she or he seeks to know" (Moustakas, 1994, p.59) and that, the researcher, will play a role in intuiting the evidence. A structural description or definition "involves conscious acts of thinking and judging, imagining, and recollecting, in order to arrive at core structural meanings" (Moustakas, 1994, p.79). Thus, to maintain rigor, all phenomenological research should have a disclaimer from the researcher to describe her/his involvement with the subject and any biases s/he may have that could interfere with or influence the goal of phenomenological research "disciplined reflection" (Hein & Austin, 2001, p.15).

Giorgi (1997) states, "Phenomenology has had an impact on 20th-century thinking not only because of its rigorous descriptive approach but also because it offers a method of accessing the difficult phenomena of human experience' (p.238). "Not all forms of knowledge qualify as scientific knowledge. In order to be scientific, "knowledge must be (1) systematic, (2) methodical, (3) general, and (4) critical" (Giorgi, 1997, p.247). Though "science takes the world for granted and wants to understand it. Phenomenology

goes a step further and doesn't even want to take the world for granted" (Giorgi, 1997, p.238). Giorgi (1997) suggests to qualify as a Husserlian phenomenological research the effort must "employ (1) description (2) within the attitude of the phenomenological reduction, and (3) seek the most invariant meanings for a context" as "it is not so much that phenomenology is against empiricism as it is more than merely empirical" (p.247).

Developing the necessary practices to conduct a phenomenology, researchers apply and practice "Understanding the nature, meanings, and essences of Epoche, Phenomenological Reduction, Imaginative Variation, and Synthesis" (Moustakas, 1994, p.101). Phenomenology uses description, which is "the use of language to articulate the intentional objects of consciousness within the constraints of intuitive evidence" (Giorgi, 1997, p.240). Purely, phenomenology seeks "give linguistic expression to the object of any given act precisely as it appears within that act... to communicate to others the objects of consciousness to which one is present, precisely as they are presented" (Giorgi, 1997, p.240-241). The phenomenological analysis- essence seeking, articulation, intuiting, and discovery processes seeking what cannot be removed- maintains purity by adhering to the data given in order to overcome researcher biases, a process called the "phenomenological reduction" (Giorgi, 1997, p.242).

The challenge of the "Phenomenological Reduction is the construction of a complete textural description of the experience... beginning with the Epoche and through a process of returning to the thing itself, in a state of openness and freedom, [that] facilitates clear seeing, makes possible identity, and encourages the looking again and again at them... [leading] to deeper layers of meaning" (Moustakas, 1994, p.96). Through this reduction (analysis), the researcher discovers the understanding and meaning or

human value of an experience. Then through variation and synthesis, the researcher confirms that the value remains across multiple views or perspectives and finally articulates the confirmations as 'is-ness', the *is* of the thing (Moustakas, 1994; Husserl & Carr, 1970) through reporting.

Lived Experience - The Phenomenological Unit

Phenomenology is human context (Giorgi, 1997). A phenomenological approach is "discovery oriented" (Giorgi, 1997, paragraph 31) and requires an open attitude so that unexpected meanings in the data emerge. Phenomenological studies capture the first person point of view to determine the central structure of an experience including qualities of intent, direction, or meaning, and conditions that make the experience possible. In other words, Phenomenology connects conscious experience with background conditions (subjective, practical, and social) that support the experience and provide context (Smith, 2011).

Following the work of Husserl, Giorgi (1997) suggests, "phenomenology begins its analysis of intuitions or presences not in their objective sense, but precisely in terms of the full range of 'givennesses,' no matter how partial or marginal" (Giorgi, 1997, paragraph 6). Phenomenological research should probe deep enough to distinguish between event and effect. Understanding an event is necessary, however exploring as many effects as possible adds to the richness of the research. Moreover, a single observation can lead to multiple interpretations and descriptions (Giorgi, 1997; Taylor & Kaplan, 2008).

Husserl and Carr (1970) stated, "Merely fact-minded sciences make merely fact-minded people" (p 6) while "philosophy retains its original meaning of one encompassing

all of the Sciences" (p.8). Philosophy provides the subjectivity required for humans to understand their place in the world beyond a quantity of data. Subjectivity connects humans to the qualities of life and language and is how we express those qualities. The human act of expressing personal lived experiences through language *is* phenomenology and getting beneath how people describe personal experiences to the structures that underlie consciousness and to the essential nature of ideas is its goal (Rudestam & Newton, 2007).

Do you see? Do you understand? These questions simplify the Phenomenological scientific process. Through seeing (illumination) then developing understanding (elaboration) Phenomenology is the 1st science (Moustakas, 1994). To elaborate a thought or condition, one must first illuminate the thought or condition. That is to say, first you must discover a thing before you can study, analyze, or otherwise understand it. This Phenomenology research seeks discovery (illumination) to benefit all IT worker organizations and to provide future researchers new IT worker stickiness ideas to elaborate (study further).

Appendix G

Bureau of Labor Statistics (BLS) Extended Tables

Reference 1 - BLS Wage Data 2010-2012

Employment by major occupational group, 2010 and projected 2020 (Numbers in thousands) - Modified to sort by Median Annual Wage

2010 National Employment Matrix title and code		Employment		Change, 2010-20		Median annual wage, 2010
		2010	2020	Number	Percent	
00-0000	Total, All Occupations	143,068.2	163,537.1	20,468.9	14.3	$33,840
11-0000	Management Occupations	8,776.1	9,391.9	615.8	7.0	91,440
23-0000	Legal Occupations	1,211.9	1,342.9	131.0	10.8	74,580
15-0000	**Computer and Mathematical Occupations**	**3,542.8**	**4,321.1**	**778.3**	**22.0**	**73,720**
17-0000	Architecture and Engineering Occupations	2,433.4	2,686.2	252.8	10.4	70,610
13-0000	Business and Financial Operations Occupations	6,789.2	7,961.7	1,172.5	17.3	60,670
19-0000	Life, Physical, and Social Science Occupations	1,228.8	1,419.6	190.8	15.5	58,530
29-0000	Healthcare Practitioners and Technical Occupations	7,799.3	9,819.0	2,019.7	25.9	58,490
25-0000	Education, Training, and Library Occupations	9,193.6	10,597.3	1,403.7	15.3	45,690
27-0000	Arts, Design, Entertainment, Sports, and Media Occupations	2,708.5	3,051.0	342.5	12.6	42,870
49-0000	Installation, Maintenance, and Repair Occupations	5,428.6	6,228.7	800.2	14.7	40,120
21-0000	Community and Social Service Occupations	2,402.7	2,985.0	582.3	24.2	39,280
47-0000	Construction and Extraction Occupations	6,328.0	7,735.2	1,407.2	22.2	39,080
33-0000	Protective Service Occupations	3,302.5	3,667.0	364.5	11.0	36,660
43-0000	Office and Administrative Support Occupations	22,602.5	24,938.2	2,335.7	10.3	30,710
51-0000	Production Occupations	8,594.4	8,951.2	356.8	4.2	30,330
53-0000	Transportation and Material Moving Occupations	9,004.8	10,333.4	1,328.7	14.8	28,400
31-0000	Healthcare Support Occupations	4,190.0	5,633.7	1,443.7	34.5	24,760
41-0000	Sales and Related Occupations	14,915.6	16,784.7	1,869.1	12.5	24,370
37-0000	Building and Grounds Cleaning and Maintenance Occupations	5,498.5	6,162.5	664.0	12.1	22,490
39-0000	Personal Care and Service Occupations	4,994.7	6,331.4	1,336.6	26.8	20,640
45-0000	Farming, Fishing, and Forestry Occupations	972.1	952.6	-19.4	-2.0	19,630
35-0000	Food Preparation and Serving Related Occupations	11,150.3	12,242.8	1,092.5	9.8	18,770

Source: http://www.bls.gov/news.release/tenure.t06.htm ; Last Modified Date: September 14, 2010; cited June 27, 2012

Reference 2 – BLS Ten-Year Tenure for All Professional Occupations 2002-2012

Table 6. Median years of tenure with current employer for employed wage and salary workers by occupation, selected years, 2002-2012

Occupation	January 2002	January 2004	January 2006	January 2008	January 2010	January 2012	Average 10 Years
Total, 16 years and over.....	3.7	4	4	4.1	4.4	4.6	4.13
Management, professional, and related occupations.....	4.6	5	5.2	5.1	5.2	5.5	5.10
Management, business, and financial operations occupations	5.2	5.5	5.5	5.4	5.4	5.9	5.48
Management occupations.....	5.6	6	6	6	6.1	6.3	6.00
Business and financial operations occupations.....	4.2	4.5	4.7	4.6	4.6	5.2	4.63
Professional and related occupations.....	4.2	4.7	5	4.9	5	5.4	4.87
Computer and mathematical occupations.....	***3.20***	***4.80***	***4.80***	***4.50***	***4.80***	**4.8**	***4.48***
Architecture and engineering occupations.....	5.2	5.8	6.5	6.4	5.7	7.0	6.10
Life, physical, and social science occupations.....	4.3	4.2	4.7	4	4.6	5.3	4.52
Community and social services occupations.....	4.4	4.7	4.7	4.8	4.6	5.0	4.70
Legal occupations.....	4.5	4.1	5	4.3	4.6	5.4	4.65
Education, training, and library occupations.....	4.8	5.1	5.3	5.4	5.6	5.9	5.35
Arts, design, entertainment, sports, and media occupations	3	3.6	3.6	3.4	3.9	4.2	3.62
Healthcare practitioner and technical occupations..	4.3	4.5	4.8	4.9	4.8	5.2	4.75
Service occupations.....	2.4	2.8	2.8	2.8	3.1	3.2	2.85
Healthcare support occupations.....	2.5	2.9	3.1	3.1	3.3	3.3	3.03
Protective service occupations.....	5.4	5.5	5.5	5.9	5	6.4	5.62
Food preparation and serving related occupations.....	1.5	1.8	1.8	2	2.3	2.3	1.95
Building and grounds cleaning and maintenance occupations	3	3.3	3.7	3.6	4.1	4.0	3.62
Personal care and service occupations.....	2.3	2.7	2.4	2.6	2.9	3.0	2.65
Sales and office occupations.....	3.2	3.4	3.4	3.5	4.1	4.2	3.63
Sales and related occupations.....	2.7	2.8	2.8	2.9	3.4	3.4	3.00

Office and administrative support occupations.....	3.6	4	4.1	4.2	4.7	4.8	4.23
Natural resources, construction, and maintenance occupations	3.7	3.7	3.5	4	4.7	4.7	4.05
Farming, fishing, and forestry occupations.....	4	3.7	3.6	3.1	4.2	3.9	3.75
Construction and extraction occupations.....	3.2	3.2	3	3.5	4.1	4.3	3.55
Installation, maintenance, and repair occupations.....	4.6	4.7	4.6	5	5.7	5.3	4.98
Production, transportation, and material moving occupations	4.3	4.2	4	4.5	4.6	4.8	4.40
Production occupations.....	5.2	5	4.8	5	5.3	5.3	5.10
Transportation and material moving occupations.....	3.2	3.4	3.3	3.8	4	4.3	3.67

Source: http://www.bls.gov/news.release/tenure.t06.htm ; Accessed April 07, 2013

Reference 3 - BLS Ten-Year IT Worker Replacement Needs

BLS Table 1.10 Replacement needs, projected 2010-20
(Numbers in thousands)

2010 National Employment Matrix title and code		2010 Employment	2010-20 Replacement rate	2010-20 Replacement needs
Computer Occupations	15-1100	3,426.0	17.7	607.4

Source: http://www.bls.gov/news.release/tenure.t06.htm ; Accessed June 27, 2012

Reference 4 - BLS Ten-Year Computer and Mathematical Worker Replacement Needs (both computer and math occupations, is basis for Ref 4 subset of just computer worker data)

BLS Table 1.10 Replacement needs, projected 2010-20
(Numbers in thousands)

2010 National Employment Matrix title and code		2010 Employment	2010-20 Replacement rate	2010-20 Replacement needs
Computer and Mathematical Occupations	15-0000	3,542.8	18.6	659.6

Source: http://www.bls.gov/news.release/tenure.t06.htm ; Accessed June 27, 2012

Appendix H

Ghapanchi and Aurum's (2011) Determinants of IS Turnover

Consolidated Ghapanchi and Aurum (2011) Tables 3, 4, 5, 6, 7

Factor Sample conclusion	Author(s)
Age	(Joseph et al., 2007)
Gender	(Joseph et al., 2007)
Marital status	(Igbaria and McCloskey, 1996)
Organisational tenure	(Joseph and Ang, 2003)
Education	(Igbaria and Greenhaus, 1992)
Need for	(Rasch and Harrell, 1989)
Career orientation	(Igbaria et al., 1995)
Organisational citizenship behavior"	(Paré et al., 2000)
Influence orientation	(Rasch and Harrell, 1989)
Job performance	(Joseph et al., 2007)
Relationship with others	(Lim and Teo, 1999)
A/B personality type	(Rasch and Harrell,1989)
Investment in current organisation	(Lacity et al., 2008)
Fairness of the reward	(Rutner et al., 2008)
Promotability	(Igbaria and Greenhaus, 1992)
Salary (wage, remuneration)	
Career advancement	(Joseph et al., 2007)
Reward	
Fringe benefits	(Tanniru and Taylor, 1981)
Distributive justice	(Joseph and Ang, 2003)
Training	(Korunka et al., 2008)
Internal labor market strategy	(Ang and Slaughter, 2004)
Socialization tactics	(King and Xia, 2001)
General discrimination	(Carayon et al., 2006)
Ethnic discrimination	(Carayon et al., 2006)
Negative organisational culture	(Longenecker and Scazzero, 2003)
Lack of team	(Longenecker and Scazzero, 2003)
Politics and infighting	(Longenecker and Scazzero, 2003)
Boundary spanning	(Igbaria and Siegel, 1992)
Task variety	(Thatcher et al., 2003)
Task identity	(McKnight et al., 2008)
Autonomy	(McKnight et al., 2008)
Job type	(Wynne et al., 2002)
Work-schedule flexibility	(Armstrong et al., 2007)
Job feedback	(Thatcher et al., 2006)
Colleague support	(Lee, 2002)
Supervisor support	(Lee, 2004)
Work stress	(Rasch and Harrell, 1989)

Perceived workload	(Rutner et al., 2008)
Role conflict	(Igbaria and Greenhaus, 1992)
Emotional dissonance	(Rutner et al., 2008)
A bad boss	(Longenecker and Scazzero, 2003)
Job attraction	(Lacity et al., 2008)
Utility of present job	(Thatcher and Stepina, 2001)
Job motivating score	(Lee, 2000)
Pay satisfaction	(Thatcher et al., 2006)
Career satisfaction	(Smith and Speight, 2006)
Supervisory satisfaction	(Thatcher et al., 2006)
Intrinsic motivation	(Thatcher et al., 2006)
Organisational satisfaction	(Lacity et al., 2008)
Continuance commitment	(Paré et al., 2000)
Affective commitment	(Paré et al., 2000)
Organisational commitment	(Igbaria and Greenhaus, 1992)
Professional commitment	(Bartol,1983)
Emotional exhaustion	(Korunka et al., 2008)
Fatigue	(Carayon et al., 2006)
Future job uncertainty	(Carayon et al., 2006)
Career concern	(Lim and Teo, 1999)
Image violation	(Niederman et al., 2007)
Employment shock	(Niederman and Sumner, 2001)
Family and friends support	(Lee, 2004)
Managing family	(Armstrong et al., 2007)
Work-family	(Ahuja et al., 2007)
Job alternatives	(Joseph et al., 2007)
Utility of alternative job	(Thatcher and Stepina, 2001)
Threat of professional obsolescence	(Ryan et al., 2006)

Appendix I
Research Plan Review

The following research process review serves to outline the actions and approximate sequence required to complete this phenomenology. The outline incorporates Creswell's (2007) seven step data collection process, "locating a site or individual, gaining access and making rapport, sampling purposefully, collecting data, recording information, resolving field issues, and storing data" (p.117), then applies the data interpretation, understanding, and meaning processes suggested by Giorgi (1997).

1- Research committee approvals
    a. All required processes, presentations, and paperwork
2- Collect research participants through Snowball processes (Creswell's step one)
    a. Ask professional contacts to reach out through their network and collect the names and contact information of potential research subjects not known by the researcher and who have worked in IT for at least 62 months (Rudestam, & Newton, 2007)
3- Make initial contact with the participant to establish rapport (Creswell's step two)
    a. See Appendix C contact e-mail
4- Pre-Interview to qualify then schedule each participant (Creswell's step three)
    a. See Appendix D prequalification form
        i. Requires information from Appendices A and B (BLS Job codes and Descriptions)
        ii. Once qualified, agree on interview time and method

1. Phone or webcam to facilitate participant schedules and recording tools

5- Conduct and record interview to ask all questions, record, and store

a. See Appendix E question set (Creswell's steps four and five)

i. Though Creswell (2007) suggests five open ended questions, the set for this research contains nine questions that frame and explore organization staying (choice) through multiple contexts as a way to uncover *intentionality* and *noesis* – a directed consciousness and meaning that underlies the answer- (Moustakas, 1994; Husserl & Carr, 1970)

ii. Interviews will be scheduled for a 90 minute period to accommodate unknown field issues (Creswell's step six)

iii. Recordings captured on two voice recorders then stored in three separate secure locations (Creswell's step seven)

After data are collected, the research process did:

6- Transcribe interviews

a. Convert audio recordings to written time and question sequenced documents

7- Send transcriptions to participants to validate "this is what you said"

a. E-mail transcribed recordings

After the participants validated data, the research did:

8- Re-view, re-search, re-visit the data to discover organization qualities (themes) contributing to the Sticky IT worker phenomenon

a. Interpreting interview data through

i. Giorgi‘s (1997) post data gathering processes to interpret data

1. Holistic data reading and review

2. Segmenting the data into parts

3. Disciplined organizing and

4. Articulation and synthesis

ii. Word counting

iii. Microsoft Excel text manipulation

iv. Trend seeking (Newton & Rudestam, 1999; Saldana, 2007)

v. Graphic representations using visual relationship and text tools from http://www.touchgraph.com and http://www.wordle.net

9- Collect and interpret interviews until data saturation is achieved

a. Comprehensively exploring a concept until its relationships with the data and other concepts become theoretically meaningful (Rudestam & Newton, 2007)

b. Loop to step two until saturation

10- Describe the qualities (themes) and connect with contexts where appropriate

a. Synthesize the emergent organization qualities, themes, contexts by following the data (Giorgi, 1997; Moustakas, 1994; Lee, 1999; Saldana, 2007)

11- Capture and summarize the Sticky IT Worker phenomenon findings

a. Capture the analysis (Phenomenological Reduction) (Giorgi,1997) in a single document to support any common discoveries or descriptions that emerge through the multiple analyses (Moustakas,1994; Saldana, 2007)

12- Send summary to the participants for validation or fit agreement

a. Using triangulation to reduce Type 1 and 2 errors by asking participants to validate discoveries, descriptions, and data interpretation as well as description alignment or agreement between the subject and any emerging themes, frameworks, or stories (Husserl & Clark, 1970; Smith, 2011; Moustakas,1994)

Once the participants agreed that the newly emerged Sticky IT worker phenomenon captures, supports, includes, or otherwise aligns with the reasons they choose to stay with one organization for a long time, the research did:

a. Document research findings and outcomes in dissertation chapters four and five

b. Clean-up and format to meet final report guidelines

Appendix J
Research Subject Consent Form

Please read, print your name, and sign (or digitally mark), then return to p...@emailname.com or fax to xxx-xxx-x191.

Background
This Phenomenology is being conducted by P. Lewis, a Doctor of Management student at George Fox University, Newberg Oregon.

Purpose
The purpose of this Phenomenology is to discover and describe the organization qualities that contribute to IT worker retention so that other organizations may mimic those qualities to create a better work environment for IT workers, thereby increasing IT worker retention.

Process
As a study participant, you will be asked for personal information of the type found on an employment resume. You will also be interviewed and asked to respond to questions exploring your current employment choice. Lastly, you will be asked to confirm interview transcripts and alignment with study findings.

Protection
All information gathered will be assigned a participant tracking ID number (called the Assigned Interview Code), which will substitute for the participant's name. Information will be digitally captured and stored in encrypted files.

Participation
Your participation in this research study is voluntary. You may withdraw at any time. Compensation will be paid only after the research participant (subject) completes all steps in the process. For questions or concerns regarding this research you may contact the research committee Chairperson Dr. T. Rahschulte at George Fox University in Newberg, Oregon (te..@georgefox.edu)

_____ (Assigned Interview Code) Participant Acknowledgement

_____.
Participant Name (Printed or Typed)

_____. _____
Participant Signature or Electronic Marking Date

Appendix K

Professional Contact E-mail to Initiate Snowball Sampling

Subject: Do you know someone who works in IT?

Hi _____,

As you know, I have been working to earn my Doctorate for some time now. In April 2013 I received permission to conduct the original research required to complete my degree. You are receiving this e-mail as part of the sampling technique approved for my research. Please forgive the formality in this e-mail, it is another part of my ongoing "final degree" pursuits.

My research question is "Why do IT Workers, Stick?" My research seeks to discover what organizations *"do"* that causes IT workers to *"choose"* to stay for a long time (stick, more than 5.1 years) even though market conditions support much shorter tenures. The Win/Win goals of this research are making organizations better for IT workers and creating IT worker stability for organizations requiring IT skills.

The research requires that I interview IT workers who have worked in the same for-profit organization for at least 5.1 years. If you know someone or if you know someone who knows someone, who knows an IT worker with 5.1 years or more tenure in the same organization that would like to earn $50.00 for a couple hours of research including four e-mails and one phone call, please reach out to them and let me know.

The IT worker participant qualifications include:

1- A hands-on IT worker, not an IT Manager, IT Director, etc.
2- Currently working at a for-profit organization for at least 5.1years.
3- The organization employs 50 or more people (the entire organization, not just IT).

Thank you in advance for any effort to help finish this, my last, degree.
Name

Appendix L

Post Interview Analysis – Emerging Theme Agreement and Weighting Survey

Online Survey - http://edu.surveygizmo.com/s3/1320424/Sticky-IT-Worker-Findings

Thank you for participating in this final Sticky IT worker research process. This last survey should only take a few minutes to complete. The research findings have been sorted, filtered, analyzed, and viewed through a number of data analysis processes and tools, leading to seven emerging themes. As a research participant, you will be asked if each theme supports your decision to stay with your employer, how much each theme matters to you, and finally you will be asked to rank the themes.
The seven themes are listed below in Alphabetical order with the following format...

Sticky Theme Title (supporting words in parentheses)
- Sentence excerpts from interviews to provide theme context

Career (experience, school, job, working)
- The flexibility to paint your own career path
- Take on different responsibilities and grow your career
- Increase, career advancement
- Defining my career and moving forward

Environment (hours, feel, place, area)
- The good working environment
- A great environment to be in
- The best work environment
- A culture that you want to stay in

Learning (different, current, new, doing, know)
- To learn new things is a big thing for my job satisfaction.
- The ability to continue to learn more skills
- I continue to grow and learn
- They encourage you to continue to learn

Opportunity (time, offer, new)
- The opportunity to take on new tasks
- The opportunity for growth
- The opportunity to take on additional
- Opportunity for new technology

Organization (group, management)
- Being able to move up in the organization
- The organization will support you
- The organization stability
- Management in the organization

Pay (need, benefits, money, enough, having)
- I think a big part of it is pay
- We do have fairly good benefits
- Paying for the education was a big thing
- I make good money here

People (team, person, our, someone)
- It is the people you work with
- To have a team of people that can back you up
- I like my coworkers, my team
- I have a good team

To begin the survey please enter your Assigned Interview Code (included in the e-mail with this survey link).

_____

Please enter the e-mail address where you would like your Amazon gift card delivered.

_____

Are you still working with the same employer referenced during the telephone interview for this research?

Yes
No

Based on the theme title, supporting words, and sentence excerpts, do the following themes make a difference in your decision to work for your current employer?
1. Career

Yes
No

2. Environment

Yes
No

3. Learning

Yes
No

4. Opportunity

Yes
No

5. Organization

Yes
No

6. Pay

Yes
No

7. People

Yes
No

Based on the theme title, supporting words, and sentence excerpts, please weight the value of the following themes in your decision to work for your current employer?

1- Very Important
2- Important
3- Minor Importance
4- Neither Important nor Unimportant
5- Minor Unimportant
6- Unimportant
7- Not Important At All

1. Career

1-Very Important
2-Important
3-Minor
4-Neither
5-Minor
6-Unimportant
7-Not Important

2. Environment

1-Very Important
2-Important
3-Minor
4-Neither

5-Minor
6-Unimportant
7-Not Important

3. Learning

1-Very Important
2-Important
3-Minor
4-Neither
5-Minor
6-Unimportant
7-Not Important

4. Opportunity

1-Very Important
2-Important
3-Minor
4-Neither
5-Minor
6-Unimportant
7-Not Important

5. Organization

1-Very Important
2-Important
3-Minor
4-Neither
5-Minor
6-Unimportant
7-Not Important

6. Pay

1-Very Important
2-Important
3-Minor
4-Neither
5-Minor
6-Unimportant
7-Not Important

7. People

1-Very Important
2-Important
3-Minor
4-Neither
5-Minor
6-Unimportant
7-Not Important

15. Based on the theme title, supporting words, and sentence excerpts, please rank the following themes with regards to making a difference in your decision to work for your current employer.

Where...1= Most Important ...and... 7= Least Important

Drag items from the left-hand list into the right-hand list to order them.

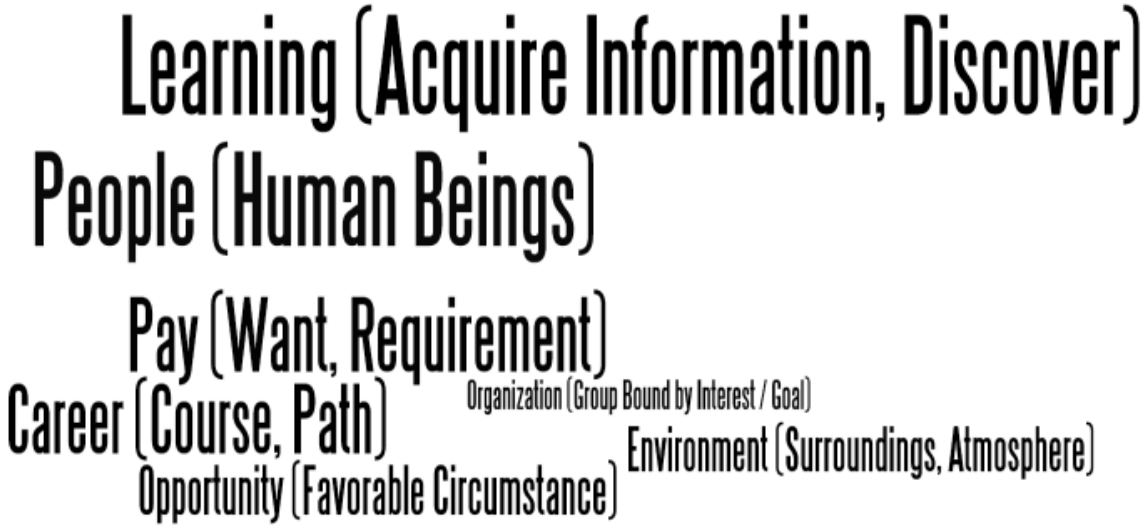
Career	1-
Environment	2-
Learning	3-
Opportunity	4-
Organization	5-
Pay	6-
People	7-

Appendix M

Evolution of the Wordle (http://wordle.net/) Visual Representation of Language Analysis

Filtering, Analysis, Discovery Example 1.

Filtering, Analysis, Discovery Example 2



Filtering, Analysis, Discovery Example 3

Filtering, Analysis, Discovery Example 4