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INFORMATION TECHNOLOGY SOFT SKILLS TRAINING

Abstract

Information technology (IT) professionals' deficiencies in soft skills lead to decreased organizational performance. This qualitative inquiry project explored the perspectives of leaders and IT employees about effective soft-skills training practices. A conceptual framework was built on previous models (e-Leadership and soft-skills educational games design and CareerEDGE employability development), including workplace efficiency, elevated hiring expenses, training opportunities, employability, removal of traditional approaches, and customized training. The framework guided the creation of an interview protocol, and open-ended interviews of 10 IT professionals provided data. Thematic analysis led to six themes: organizational effects, hiring concerns, training concerns, IT challenges, training types, and designing soft-skills training. Effectively training IT professionals on soft skills may lead to higher productivity, customer and colleague satisfaction rates, and increased efficiencies.

Keywords: Soft skills; information technology; organizational performance; training, qualitative inquiry

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Introduction

Blankenship (2017) found that companies lose up to 16% of technical employees due to a lack of soft people skills, such as communication and teamwork. Deloitte surveyed 11,000 business leaders in 2018, finding that companies valued hiring employees with soft human skills versus harder skills like coding and online security (Barwick, 2018). Technical skills are developed through instruction, education, or on the job, but soft skills are human skills such as communication, critical thinking, teamwork, and leadership (Cacciolatti et al., 2017). When an employee lacks soft skills, it negatively impacts the organization, leading to employee turnover, reduced workplace communication, and increased workplace tensions (Tomić et al., 2019).

Adhvaryu (2017) found that workers who received soft-skills training were 12% more productive than those without training. IT-related training typically focuses on hard technical skills, and IT professionals rarely receive soft-skills training, hindering their growth (Shmatko & Volkova, 2020). This study used two models for its conceptual framework, drawn from the e-leadership and soft-skills educational games design model (ELESS) developed by de Freitas and Routledge (2013) and the CareerEDGE (EDG) employability development model developed by Dacre Pool et al. (2014) to guide the study. The study was created to answer one research question: "What are the perspectives of leaders and IT employees in the U.S. IT industry regarding effective training strategies to instill the soft skills required by IT workers?" with one subquestion: "What perceptions do leaders and IT employees have about how lack of soft skills affects organizations?"

Applied Conceptual Framework

The EDG and ELESS models (Dacre Pool et al., 2014; de Freitas & Routledge, 2013) contributed to this study's conceptual framework. ELESS relates to technology employees' lack of soft skills and the need for appropriate training because it highlights unique training methods to instill more than just generic or hard skills to create better employability (de Freitas & Routledge, 2013). The ELESS model, created by Mysirlaki and Paraskeva (2019), uses "the input-process-output model and the relationships created through emotional intelligence, task linkage, communal group norms, team solidarity, transformational leadership, and team effectiveness from a multilevel perspective" (p. 36). ELESS embodies social skills' role in employment and the importance of improving soft skills for employment longevity (de Freitas & Routledge, 2013). De Freitas and Routledge (2013) adapted the ELESS model to the concept that technical employees cannot thrive having the same training as those in other fields, thus incorporating gamification into the training methods (Mateo & Yagüe, 2021). In 2019, Mysirlaki and Paraskeva adapted ELESS for remote worker training, focusing on building trusting virtual team relationships, including training IT workers to follow through on commitments and interdependencies, showing vulnerabilities when uncertain, and acting for the good of the team, which was deemed important by Ferrell and Kline (2018).

EDG was created by Dacre Pool et al. (2014) as a model espousing offering employees career development training, work and life experiences, subject knowledge, skills and understanding, and emotional intelligence to create employable graduates from programs as well as from organizations. This model was updated by merging the two models and incorporating the business problem of decreased organizational performance and the known skills gap of IT workers lacking soft skills, which created an applied framework (Figure 1).

Figure 1

Applied Conceptual Framework of Soft Skills in U.S. Technology Employees

Literature Review

In the early 2000s, corporate layoffs of IT workers required many to learn soft skills to interview for new positions (Dash, 2001). Soft-skills training was unavailable; thus, Crecca (2003) noted that finding well-rounded IT professionals was difficult. Since then, using soft skills has become necessary for effective and efficient employment in modern corporations. The IT sector has evolved to be incorporated into business communications, which requires employees with interpersonal skills and increased communication abilities (Nagarajan & Mohanasundaram, 2020). Being a good communicator makes IT employees more valuable to the company and opens opportunities to the employee (Sosa et al., 2022).

Despite assumptions otherwise, technology and science-based students rarely receive soft-skill learning during their early and higher education experiences, leaving them unprepared for the work environment (Stal & Paliwoda-

Pękosz, 2019). Soft skills include etiquette, teamwork, and social networking (Sosa et al., 2022). Soft-skill courses, taught online, have become common and functional ways for employees to learn soft skills, although companies prefer using hybrid methods (Almonte et al., 2021). The global online soft-skills training market is expected to reach 22.7 million by 2027, growing at an estimated compound annual growth rate of 14.2% over the forecast period due to thriving self-paced online learning (Absolute Market Insights, 2020).

Meso and Kerven (2016) researched soft-skills gaps in IT employees using a qualitative method. They found that because IT subject matter is technical, methodical, structured, and requires "left-brain" versus "right-brain" capabilities, IT workers have trained their brains to look objectively and unemotionally at problems, making them less capable of applying soft skills. They recommended that IT workers read and present scholarly research to groups, requiring them to upskill their communication abilities, increasing their confidence in using them. Their research participants showed increased leadership and communication abilities post-training.

Samuel (2016) proposed training to lead trainees through on- and offline communication, teaching about situations where the potential for misunderstandings could offend customers or colleagues. After the pandemic increased remote work, Beckelhimer (2020) highlighted the increased need for soft-skills training, as Samuel had proposed. Gura (2019) reviewed organizations that hired IT workers without soft skills, finding that their inability to manage conflict led to increased turnover and reduced organizational efficiency. Richa et al.'s (2021) survey of 269 IT professionals in 5 IT companies, plus an additional 329 IT college students from 12 technical institutes, resulted in findings identifying the major soft skills are personality traits, leadership qualities, interpersonal skills, teambuilding skills, and organizational thinking. A robust gap existed between what the professionals believed were important soft skills from what the students (or future job seekers) saw as important.

Recruitment and Data Collection

Participants for the study were recruited using a third-party vendor service, User Interviews. This service finds appropriate participants and ensures their backgrounds fit the study requirements. The inclusion criteria were that the participants must work in the IT industry in the United States and have a basic understanding of *soft skills*. The participants' demographics appear in Table 1.

Table 1

Participant Demographics

Job Title	Department	Work Exp.	Position Exp.
Senior director	Software development	14 years	6 years
Database administrator	Information technology	20 years	20 years
Level one technician	Information technology	6 months	1 week
Systems administrator	Security	1 year	1 year
Operations center manager	Information security	3 years	3 years
NOC administrator	Managed services	4 years	4 years
Product technologist	Pre-sales	9 years	5 years
IT director	Information technology	11 years	11 years
Systems administrator	Operations	6 months	6 months
Executive support manager	Administration support	11 years	11 years

Data were collected through semi-structured interviews using an original interview protocol designed by Stewart (2022) and expert reviewed by two IT field experts in business research. Each expert had a doctorate and multiple years of experience reviewing, supporting, and assisting with applied business research projects. Before data collection occurred, the research study was approved by an Institutional Review Board and determined to be "not human subjects research." The interviews of the 10 participants occurred using Zoom between June 11, 2022, and June 14, 2022. The interviews were recorded, and the transcripts were verified and validated by reviewing Zoom and ensuring verbatim accuracy. Interviews lasted, on average, 30 minutes, using the following interview protocol:

- How do you define soft skills?
- What are your views regarding the soft-skills training offered at your organization?
- Can you explain any difference you have noticed in soft skills between technology-based and non-technology-based departments?
- How has your organization deployed past soft-skills training or lack of it?
- Do you think that soft skills affect profitability in your organization?
- What type of soft-skills training is needed for IT employees?
- How can the organization better enhance growth, productivity, and less turnover within the IT department through soft-skills training?
- What methods of learning do you feel are most vital for teaching soft skills to IT employees that lack them?
- How would you evaluate whether e-learning, in-person learning, or a hybrid program is a worthy investment for increasing soft skills in IT employees?
- Are there any other comments you would like to make or questions you might have regarding this interview? What other thoughts do you have?

Data Analysis

The data were placed into Delve (2022), a collaborative, online, qualitative analysis tool that assists in finding codes and identifying commonalities among large quantities of written data. A six-step thematic analysis process was used: *becoming familiar with the data*, *generating initial codes*, *searching for themes*, *reviewing themes*, *defining and naming themes*, and *producing the analysis report* (Braun & Clarke, 2006). The process led to an initial group of 17 codes (Table 2).

Table 2

Initial Codes

Code	Number of participants	Occurrences	Examples from transcripts
Defining soft skills	10	33	"Soft skills are not technical, but rather how well you communicate with others, both on your team and in client management." (P1).
Soft skills and profitability	5	15	"Retaining the client, I think it plays a huge role." (P6).
Soft-skill differences between departments	10	34	"I see the soft skills a lot more with people that are in the non-technology-oriented areas of the company." (P5).
Communication issues	9	27	"Their communication is terrible. They can't articulate tone." (P5.)
Hybrid training	6	61	"I would say it could be, I guess, a mixture of both. (P3)
In-person training	10	36	"In person where you can practice up with someone to gain that sort of real-world experience. Because just reading an article or watching a slideshow or recorded video about it is a lot different." (P3).
Online training	8	16	"I just wonder if people would take the easy way out and just automatically register for online." (P2).
Absence of soft-skills training	10	25	"Soft skills have been something I have had to develop without help from my work. The training they offer is for hard skills that are applicable to your specific position." (P4).
Soft-skills links to turnover	5	10	"With soft skills training people would be more likely to stay. That would allow for less turnover, and therefore more growth, because the individuals you have trained with stick with you for longer." (P9)
Soft-skills assumptions	3	11	"They don't call out like 'Do you have soft skills.' They just assume you do." (P3).
Soft-skills role in performance	9	20	"A lack of soft skills affects performance if you have to explain a project to others and you don't know how to talk to people." (P10).
Soft-skills effect on growth	6	12	"If soft skills are not very good that will sour some individuals in management and lowered opportunities for others." (P9).
Inability to teach soft skills	5	10	"By the time they get to me, if they don't have soft skills, I don't know that I can impart it upon them." (P1).
Soft-skills ties to productivity	7	12	"If you are not capable of giving the right information then you are not doing what you need them to do in the timely manner." (P10).
Training procedures	9	32	"If you are new to your career, in person or classroom type training should be required for soft skills." (P7).
Methods of soft-skills training	10	35	"A classroom setting is needed in order to go through these." (P8).

Next, the codes were placed into a Microsoft Excel spreadsheet, and each code was identified and color-coded within the text of each transcript. Then, the code's significance was considered, analyzed, and discussed. Grouped codes then became categories and sub-code occurrences counted. Thematic relationships were created and grouped into focus areas. The code groupings (Table 3) were for matched topics.

Table 3

Code Groupings

Grouping names	Relevant Codes	Occurrences
Defining soft skills	Defining soft skills, soft skills' role in performance, soft skills' relation to profitability, soft skills ties to productivity, soft skills' effect on growth	92
Workplace areas of concern	Soft skill differences between departments, hiring challenges, soft skills link to turnover, communication issues	77
Training concerns	Inability to teach soft skills, absence of soft skills training, soft skills assumptions	46
Training methods	Hybrid training, in-person training, online training, training procedures, methods of soft skills training	128

Table 4 provides the final set of themes that emerged after reviewing the code groupings. These six themes were the most heavily conversed points of the interviews, and all related to the lack of IT soft skills training and training recommendations.

Table 4

Theme Definition

Theme name	Relevant Codes	Occurrences
Organizational effects	Soft skills related to profitability, soft skills tied to productivity, soft skills affect growth	39
Hiring concerns	Soft skills assumptions, hiring challenges, soft skills link to turnover	27
Training concerns	Inability to teach soft skills, absence of soft skills training	35
IT challenges	Soft skills role in performance, soft skill differences between departments, communication issues	81
Training types	Hybrid training, in-person training, online training	61
Designing soft-skills training	Defining soft skills, methods for soft skills training, training procedures	100

Application to the Conceptual Framework

The initial applied framework included concepts taken from the EDP and ELESS models. This framework was mapped back to the resulting themes and codes. Brink et al. (2019) showed how this can confirm the credibility of research results. Table 5 shows the results of this mapping.

Table 5

Application of Framework and Themes

Final Theme Name	Framework Application	Codes
Organizational effects	Workplace efficiency	Soft skills related to profitability, soft skills tied to productivity, soft skills affect growth
Hiring concerns	Elevated hiring expenses	Soft skills assumptions, hiring challenges, soft skills link to turnover
Training concerns	Training opportunities	Inability to teach soft skills, absence of soft skills training
IT challenges	Employability	Soft skills role in performance, soft skill differences between departments, communication issues
Training types	Removal of traditional approaches	Hybrid training, in-person training, online training
Designing soft-skills training	Customized training	Defining soft skills, methods for soft skills training, training procedures

Discussion of the Data

The participants of the study provided answers to the study's central research question: "What are the perspectives of leaders and IT employees in the U.S. IT industry regarding effective training strategies to instill the soft skills required by IT workers?" and subquestion: "What perceptions do leaders and IT employees have about how lack of soft skills affects organizations?"

Multiple participants mentioned that soft skills impacted organizational effects on profitability, productivity, and growth. One stated, "Making the company, as a whole, better through the user has a cascading effect, especially from the company to our customers. With profitability there is a cascading effect that scales back to productivity and goes hand in hand with the profitability." This comment aligned with the findings by Singh-Dubey and Tiwari (2020) that nontechnical skills are required for a business's growth; without them, businesses can lose productivity and growth potential. Another participant stated that:

> When it comes to soft skills, a badly managed team is an inefficient team. If an employee is bad at closing tickets because it requires different people talking to each other, then they likely they won't get tickets done as fast and that will affect the end line business. That can decrease revenue because of lost business.

Participants commented that soft skills are tied to turnover and hiring challenges. Resumes do not show soft-skill abilities. One participant said, "IT resumes are kind of like Snapchat. They are filtered and glamorized; they do not really represent the person." Another said, "Those people that are struggling with soft skills, what typically happens with those people is there's eventually turnover."

Despite the stated need for soft-skills training, only one of the 10 companies represented by participants offered it, and that was based on the participant implementing it after 20 years at their organization. That participant said, "Businesses keep putting brick after brick after brick, but not putting any mortar between the bricks. Without that completion, that will impact the company."

A surprising finding was that over half of the participants did not believe people can learn soft skills through training. One such participant said, "Soft skills cannot always be trained on because it requires somebody changing how they interact with people in their daily lives." All the participants believed that IT professionals exhibit lower soft skills than people in other departments. One said, "Someone who is on a computer all day coding and writing programs is different than someone who is customer facing," and another said, "We have some very talented individuals that just cannot articulate or really get back to the client." Another mentioned "They are so bad at

communicating with each other internally, or even with clients. One person will work on tickets and finish them and not even call or email the client to let them know."

Most felt that hybrid-model training was best. One said, "I respond better to classroom types, settings, or a group where I can bounce ideas off people rather than just sitting in front of the computer watching a video," while another stated, "If there is a face-to-face interaction with customers you need to do face-to-face training." Participants mentioned the need for situational real-world and role-playing interactive training.

Practical Implications and Future Research

Developing more effective ways to train employees in technology on soft skills can positively affect the employee and positively affect an organization's retention rates, productivity levels, and employee satisfaction. Leaders and employees agreed that organizations lack training strategies to instill the soft skills required by IT workers. They also agreed that soft-skill training could increase workplace efficiency and profitability.

Organizations need policies and procedures for in-person soft-skills training for IT employees. Leaders should assess the IT challenges and organizational effects to understand how the lack of soft skills affects the organization and relates to negative business outcomes. Findings showed that leaders should avoid assuming IT new hires have soft skills since participants noted that such assumptions led to higher turnover.

Loss of customers is another reason for training. While this research focused on workplace productivity and interactions with colleagues and leaders, organizations with tech-support departments often lose customers when IT professionals are awkward or unprofessional when dealing with others (Caeiro-Rodriguez et al., 2021). Further research on training IT workers, especially IT help-desk workers, would help organizations perform better.

Further research is needed about the perspectives of non-IT employees who interact with IT employees on at least a weekly basis. Interventional-styled training with pre- and post-test results would help measure how well (or if) soft-skills training is transferred after training by IT workers. Future or additional studies might create value by focusing on those who have encountered IT staff and felt that soft skills, or the lack of soft skills, affected the interaction's outcome with examples. Such research could lead to the creation of situational training scenarios in an interactive training process.

Conclusion

Having clearly defined soft-skills training policies, a training program that presents workplace situations and how to manage them, and consideration for the gaps in soft skills between technology and non-technology departments is essential. Organizations must focus on policies that back employees' soft-skills development and promote change to obtain the intended outcomes. Without such policies in place, organizations are failing not only themselves but also their employees.

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