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Exploring the Impostor Phenomenon (IP) among Information Technology (IT) Majors

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Abstract

Impostor Phenomenon (IP)—a subjective feeling of not being knowledgeable or talented enough for one's chosen profession or job roles—remains underexplored among IT students and professionals. The study hypothesizes that Computer Science (CS) and non-computer science, i.e., Information Systems (IS) and Cybersecurity (Cyber), may have experienced different levels of IP. Preliminary data collected from 166 undergraduate students indicate that CS and non-CS students exhibit similar IP experiences. Approximately 57% of our IT students report 'frequent' or higher IP experiences according to Clance's (1985) IP scale. Qualitative open-ended questions also support Clance's sub-dimensions of being fake, incompetent, and lucky in the context of IT education. The findings also suggest other underlying factors that contribute to student retention, peer sense of belonging, and faculty-student interactions. Future implications are discussed.

Keywords: computer science, cybersecurity, impostor phenomenon, impostor syndrome, information technology, information systems

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1. INTRODUCTION

As current information technology (IT) evolves and new technologies emerge, keeping up with the required skills and knowledge remains an ongoing task. Not only do IT professionals have to stay abreast of these changes, but they also need to find marketable skill sets. For example, widely adopted artificial intelligence applications are becoming mainstream, and leveraging their capabilities remains an ongoing endeavor among IT professionals and researchers. Failing to keep up with newer technological trends often leads to feelings of incompetence, doubts about one's abilities, or being labeled as 'legacy' IT professionals. These feelings of inadequate knowledge and skills often occur in rapidly changing marketable skills.

While it is quite normal for most professionals to perceive themselves as less competent than their peers, some suffer more than others, to the point that they feel incompetent and do not belong in the IT profession. The feelings of inferiority, fraudulence, and fakery, even though a person is highly capable, can be attributed to an "impostor phenomenon" (IP) (Clance, 1985). Impostor Phenomenon (IP) is defined as "the psychological experience of believing that one's accomplishments came about not through genuine ability, but as a result of having been lucky, having worked harder than others, or having manipulated other people's impressions" (Langford and Clance, 1993, p. 495). A person with IP sometimes works harder to compensate for these negative feelings. They put themselves down and refuse to accept praises, promotions, accolades, even when their peers look up to them. Therefore, having these negative feelings and lacking sufficient knowledge or skill are detrimental to one's career and well-being, especially when starting out in an IT major.

Years of educating IT majors (i.e., Computer Science, Cybersecurity, Computer Networking, and Information Systems) and managing IT scholarship recipients, we observed high-achieving, technically competent students dropping out or switching to non-IT majors. Some students, despite earning near-perfect grades, had doubts about graduation and their future career prospects. They often think, "I am not a good enough programmer," "I don't think I belong to this major," "I don't have sufficient IT skills," "I don't do well in tests," or "My peers are much more competent in programming than I am." IP positively correlates with depression and social anxiety and negatively correlates with self-esteem (Chrisman et al., 1995). It is therefore highly probable that some IT students may have experienced IP, peer pressure, and feelings of incompetence during their IT studies. Rosenstein et al. (2020) find that computer science students are more prone to suffer from IP than students in other majors. We, therefore, propose the following research questions:

1. Does Impostor Phenomenon (IP) exist among IT majors? If so, are there any differences between Computer Science (CS) and other IT majors, i.e., Information Systems (IS), and Cybersecurity (Cyber)?
2. What are the other factors related to IP among the IT majors? Can there be other factors contributing to IP beyond the extant literature?

Exploring IP will help us understand the challenges IT students are facing. Perhaps we can find better strategies to retain and motivate IT students. In the next section, we examine the existing IP literature on STEM/IT majors.

2. DEFINING IMPOSTOR PHENOMENON (IP)

Clance and Imes (1978) first discovered impostor phenomenon (IP) among academic and professional women who exhibited clinical symptoms of anxiety, lack of self-confidence, depression, and "frustration related to inability to meet self-imposed standards of achievement" (p. 242). IP also occurs in high-

stress, high-position, highly skilled professions, when individuals feel like outsiders and their successes stem from luck, personal connections, minority status, and hard work, but not ability or intelligence (Clance, 1985).

Clance (1985) also observes IP among artists, graduate students, lawyers, business owners, nurses, and writers. Research reveals that IP is more common than previously thought. IP is found among lawyers and medical trainees (Chodoff et al., 2023), including college professors (Hutchins, 2015), nurses (Haney and Rutledge, 2018), and undergraduate and graduate students (Clance and Imes, 1978). Most IP sufferers exhibit fears of evaluation, repeatable success, and incompetence (Langford and Clance, 1993). They also "limit their goals and stay in positions that are below their true capabilities" (Clance, 1985, p. 23).

Rapidly changing technologies, artificial intelligence, and the inability to keep pace with marketable skills fuel perceptions of IP, especially in information technology (IT) disciplines. While success encourages another potential accomplishment for many, achievement increases self-doubt among people with IP (Clance, 1985). Those who perceive themselves as less competent may shy away from social engagement or peer collaboration. Research shows that individual who experience IP hide their inability and avoid being judged as incompetent by others (Noskeau et al., 2021). Literature indicates IP exists with other psychological problems, including depression, anxiety, and low self-esteem (Bravata et al., 2019). In business education, students with a higher external locus of control and math anxiety also exhibit a higher level of IP (Tovey et al., 2022). An established, prominent female cybersecurity professor also admits having to cope with IP (Yao, 2021). Guenes (2025) reports that half of software engineering professionals experience intense IP, which impacts their productivity. In sum, evidence shows that technical disciplines shape perceptions of competence and knowledge, which may lead to a sense of interiority among IT students. The next section describes the quantitative data and open-ended surveys we use to address our research questions.

3. METHODS

3.1 Sample

Our data collection lasted four semesters, as shown in Table 1. The respondents were second-year undergraduate IT students, i.e., in Computer Science, Cybersecurity, and Information Systems, enrolled in systems analysis and design (SA&D) sections. We grouped our students into Computer Science (CS) and non-CS (Information Systems and Cybersecurity) groups, as we hypothesized that CS students would exhibit a higher level of IP than non-CS students due to CS curricula that are technology- and programming-savvy. Respondents received 1% extra course credit for completing a 10-minute web-based survey; non-participants were given an option to complete a comparable alternative task to earn extra credit. We eliminated non-IT majors, such as mathematics, actuarial science, economics, and health sciences. Our IT department has a Networking & Telecommunication Management (NTM) major, but there were so few students that we dropped it from the study. To address our first research question, we hypothesize that *the IP level of CS students is higher than that of their non-CS counterparts*.

3.2 Initial Data Analyses

A total of 76 Computer Science (CS), 66 Cybersecurity (Cyber), and 24 Information Systems (IS) students were included. A Pearson chi-square test of independence between majors and gender showed that the consistently *low* number of female students did not vary by IT majors. ($\chi^2 = 3.89$, df = 6, p = .692). Historically, our Cyber program was part of the IS sequence and later became a distinct major; therefore, Cyber and IS shared many of the same fundamental IT courses. An independent t-test revealed no significant differences across all IP items (Appendix A) between Cyber and IS, so the two groups were combined as the non-CS group (n=90). CS students (n=76), however, significantly differed from the non-CS group, i.e., IS and Cyber, in IP2 (t=2.85, p=.002), IP5 (t=2.92, p=.002), and IP15 (t=1.77, p=.039).

According to Clance's IP scoring classification, our respondents had 'low' (13.8 percent, less than 40), 'moderate' (29 percent, 41-60), 'frequent' (46.4 percent, 61-80), and 'high' (10.8 percent, more than 80) of IP scores. Our sample has an average IP score of 63.2 (s.d. = 13.8), suggesting that more than half of our respondents frequently experienced some level of IP feelings.

Clance's Impostor Test captures IP by summing all twenty items and classifying "IP experiences" based on the total score as follows: 'few' (<40), 'moderate' (41-60), 'frequently' (61-80), and 'intense' (>80). We summed up all IP items for both CS and non-CS (IS and Cyber) and found no significant difference between the two groups (t=.171, p =.432), rejecting our proposed hypothesis. In addition, we found no associations between majors and Clance's levels of IP experiences ($\chi 2$=3.29, df=3, p=.349), suggesting that IP experiences are independent of IT majors. In other words, both CS and non-CS students experienced similar levels of IP. Table 2 shows the breakdown of IP levels according to Clance's classification.

Semester	Initial Responses	Exclusion	IT Major	Useable Responses
Spring 2025	53	NTM=3 Non-IT=5 Incomplete=1	CS=12 Cyber=24 IS=8	44
Fall 2024	53	NTM=0 Non-IT=12 Incomplete=0	CS=30 Cyber=11 IS=0	41
Spring 2024	47	NTM=0 Non-IT=4 Incomplete=0	CS=17 Cyber=19 IS=7	43
Spring 2023	45	NTM=2 Non-IT=2 Incomplete=3	CS=17 Cyber =12 IS=9	38

CS=Computer Science, Cyber=Cybersecurity,
IS=Information Systems, NTM = Networking and Telecommunication Management

Table 1 Respondents

Major	IP Experiences			
	'few'	'moderate'	'frequent'	'intense'
CS	13	23	30	10
Non-CS	10	25	47	8

Table 2 Respondents' IP Experience

CS	Mean	Non-CS (IS and Cyber)	Mean
ip7: I tend to remember the incident in which I have not done my best more than those times I have done my best	3.75	*ip17*: I often compare my ability to those IT peers around me and think they may be more intelligent than I am	3.78
ip12: I'm disappointed at times in my present IT accomplishments and think I should have accomplished much more	3.72	*ip7*: I tend to remember the incident in which I have not done my best more than those times I have done my best	3.70
ip1: I have often succeeded on a test or task even though I was afraid that I would not do well before I undertook the task	3.62	*ip12*: I'm disappointed at times in my present IT accomplishments and think I should have accomplished much more	3.60
ip19: If I'm going to receive a good grade or gain recognition of some kind, I hesitate to tell my IT peers or others until it is an accomplished fact	3.61	*ip1*: I have often succeeded on a test or task even though I was afraid that I would not do well before I undertook the task	3.59
ip17: I often compare my ability to those IT peers around me and think they may be more intelligent than I am	3.58	*ip19*: If I'm going to receive a good grade or gain recognition of some kind, I hesitate to tell my IT peers or others until it is an accomplished fact	3.54

Table 3 Top 5 IP Items of CS and Non-CS

Additional data analyses revealed that among the ninety-five respondents who experienced 'frequent' to 'intense' IP experiences, no associations were found between the two groups of IT majors and the two categories of IP (χ^2=3.29, *df*=1, *p*=.199). Since IP's subscales include (Chrisman et al., 1995): 1) self-doubt in *competency*, 2) fear of being known as a *fraud* or less capable, and 3) external factors or *luck*, we performed principal component analysis (PCA) to explore if these dimensions exist in CS and non-CS samples. Contrary to a single-factor model (Simon & Choi, 2018), our CS sample (n=76) yielded five dimensions, and the elimination of cross-loadings and loadings < .65 (p = .05, approx. sample of 80) yielded two unique dimensions: self-doubt and fear of being less capable. As for the non-CS group, i.e., IS and Cyber (loading < .55, p = .05, n = 90), the results yielded three dimensions: (1) luck and incompetence, (2) fraud, and (3) self-deprecation. Clance's original summative, unidimensional scale reported Cronbach's alpha of .912 and .920 for CS (n=76) and non-CS (n=90), respectively. Table 3 shows the top 5 IP experience items for the CS and non-CS groups.

3.3 Supplementary Interview Questions

The open-ended question will address our second research question. To explore other IP dimensions, we posted the interview questions below to our sophomore IT students who were taking the systems analysis and design class in Spring 2024 and had completed at least a computer programming class. Our manual text exploration was anecdotal and exploratory, aimed at deepening our understanding of quantitative data. No qualitative content analysis was performed (Drisko & Maschi, 2016). Students were given extra credit for answering our open-ended questions below:

> *People in different fields sometimes may feel that they are fake, phony, or impostors. As an IT student, recall the times when you may have felt inadequate or like an impostor. Could you please describe in detail one such incident related to your IT study/work? Who/what triggered such feelings? Why do you think it made you feel that way?*

We received more than 6,000 words of replies from our students. The respondents came from the same groups of students from earlier data analyses (Spring 2024), but we cannot trace the verbal responses to the quantitative survey. They have an average age of 20.84 (s.d. = 2.31) and an average GPA of 3.35 (s.d. = .39). Other characteristics of our convenience sample are shown in Table 4.

IT Majors	Gender (male, female)	Ethnicity (wh, af, as, hi, unknown)
Computer Science (CS, n= 17)	15, 2	10, 1, 2, 2, 2
Information Systems (IS, n=8)	6, 2	4, 2, 1, 0, 1
Cybersecurity (Cyber, n=19)	17, 2	10, 2, 1, 5, 1

Table 4 Sample Characteristics used in Qualitative Analysis
(wh=Caucasian, af=African American, as=Asian, hi=Hispanic)

4. CLASSIFICATION QUALITATIVE RESPONSES

We reviewed their descriptive responses, retaining some of the students' responses in quotes, and manually grouped them into the potential factors below.

Computer Programming Incompetence. One of the foremost concerns for IT students is coding competency as they compare themselves to others. IT is synonymous to computer programming. When students struggle with programming, they are disheartened about themselves. Student **A** (CS) expressed that the person "*fall behind in a program and hear about a student who found it really easy or finished it the week it was released*," which she thought that she must keep up and "*the fear of not being good enough triggered my confusion and stress*." The feeling of being incompetent with IT knowledge makes Student **B** (CS) think that he is "*less knowledgeable and less adequate to be an IT student compared to my peers."* Student **C** (CS) mentioned that he was not as good as he thought he was because he had no idea what he was doing on a programming assignment, which raised questions about his "*overall knowledge and experience*." Student **D** (IS) switched from CS to IS because of a data structures course, which makes him feel like a phony taking it. Student **E** (Cyber) also switched from CS to Cyber because he was not passionate about coding and "*felt left out*."

***Feeling of Not Belonging to the Majority or Being an Outsider*.** Student **F** (Cyber) remembers being the only black person in many IT classes. Student **G** (Cyber) says that she is "*uncomfortable*" being with male students. We witness this sentiment on several occasions, especially among female and minority students. They express their feelings as "*unheard*," "*outsider*," or "*left out*". This feeling can cause students to switch majors.

Societal Expectations of IT Competence. Often, society imposes expectations of IT knowledge, creating pressure, anxiety, and feelings of impostor syndrome in students. IP may come from on-campus work or an internship. Student **H** (IS) feels that when she told customers of her major, they often perceive her as smart and think she knows everything about IT. "*This makes me feel happy and proud of myself, but in the back of my mind, I know that I'm not as smart as they think I am*." Student **I** (Cyber) said that IP is a "*natural reaction to not meeting people's expectations," especially when "customers are asking me to do something I didn't know how to do*."

Feeling Lost or Overwhelmed. When other students discussed the assignment, Student **J** (CS) had to "*lie about how I did because I'm embarrassed*." Being in the major makes him "*feel out of place*" and not belong in the major. Student **K** (CS) feels like a '*fake*' when a coding prompt was given in-class. While others can complete it easily, he had "*no idea what I was doing and felt like I knew nothing even though I did know some things*." He plans to switch to a non-IT major because "*I wouldn't be able to continue in the major and the assignments were feeling more difficult and no matter how I studied I still felt like my brain couldn't grasp everything*," and being in the other major makes him feel "*less like an impostor*". Student **L** (CS) mentioned that he was not as good as he thought because he had no idea what he was doing in a programming assignment, questioning "*my overall knowledge and experience*."

Self-Deprivation. Being too good and excelling on programming exams still makes Student **M** (CS) uncomfortable*: "for most of my class, I was always so worried that my professor would think I was cheating*." People may think that she is very smart, but to her, it makes her "*feel alienating at times*," and it makes her "*really worried that, should they talk to me a little more, they'd come to understand that I was somehow dumber*." As a female Asian student, Student **N** (CS) often doubts her abilities during exams despite being well prepared. She often questions her ability and compares herself to her IT peers.

Perception of Negative Judgment. Several responses from CS students reflected feelings of constant judgment as a phony or fake. Student **O** (CS) states that he "*felt phony or fake as an IT student is when I see others doing more than me or having more accomplished*," and spending less time on coding or on course work make him feel like an impostor. Working in a group makes Student **P** (CS), an African American student, feel like an impostor. He says: "*It seems like everyone is looking down on you because they have more knowledge. The judgment on people faces is what triggers these feelings*." Student **Q** (IS), also an African American, echoes the same sentiment in a group setting. It is the perception of others that makes him feel less intelligent and fuels his anxiety.

Faculty-Student Interactions. IP can be triggered unintentionally by faculty members on several occasions. Student **R** (minor CS), a female, African American, recalled a condescending comment from one of her instructors. She said the comments deepen her feeling, "*I already feel isolated sometimes as woman in the major and I have to study very hard to get mediocre grades. This experience furthered my feelings of not belonging*." In her first programming class, Student **S** (IS), an African American, feels that computer programming is not the same as learning a foreign language, as he often hears "Coding is reminiscent of learning a foreign language" by the instructor. Student **T** (CS) states that "*there have been times when I have been called on in class, or thought I knew the answer to something, but when I either answer wrong or just don't know, the teacher is very rude and makes me feel bad about not knowing it*."

Peer Comparison. We notice that IP is driven by peer comparison, leading us to perceive others as more talented and highly competent. Student **U** (Cyber) argues that when he observes "*how big a difference there was between my skills and my peers' skills, I felt like an outsider*." Student **V** (Cyber) says that he "*feels like students understand the concepts much faster than"* he can. "*I feel like I do all the same work, and get good grades on the homework, and yet in the in-class discussions, it seems like they all have had prior knowledge of the subject while I am learning it for the first time*." Student **W** (Cyber) feels less prepared and believes others find IT skills easy, have more experience, and are more advanced. "*This definitely makes me feel like a phony and makes me feel like I don't deserve to be there*". Student **X** (Cyber) is frustrated by his inability to understand IT concepts that are brand new to him, while his peers can quickly grasp the material.

***Peer Competition*.** The competitive nature of IT may lead to IP. Student **Y** (Cyber) lost a mobile application development competition hosted by the IT department and sponsored by a local Fortune 500 company. Although he made it to the finals, he discontinued. "*The product was just too tall a feat to finish, and I felt like I took someone's opportunity to do well in the competition*." "*Failing to meet that standard in the competition sucked and made me feel lesser for sure*." Peer competition has caused Student **Z** (IS) to be anxious and is afraid of failure, even though he/she has good grades, and "*the competitive nature of a school/work setting could have amplified the negative feelings*."

5. DISCUSSION AND IMPLICATIONS

The results show that IP exists among IT students to some extent—nearly half of our respondents exhibit IP. While the CS major is considered more technical and programming-savvy than the IS and Cybersecurity majors, our results reveal that IT students in both groups experienced similar IP levels. This finding addresses our initial research question. As sophomore IT students (targeted respondents), they may feel they lack the necessary skills to do well in class/major. The feeling of not knowing enough, or of "faking it until you make it," may not work in a discipline where both broad and deep knowledge are required to maintain one's major and, potentially, one's future career. This feeling of inadequate skills, even a lack of direction, when peers and team projects rely on your IT competency, often puts significant pressure and anxiety on IT students and leads to attrition. A future longitudinal study can examine multiple educational levels (e.g., junior, senior, graduate) to better understand how IP varies across degree programs.

Our qualitative analysis seeks to address the second exploratory question. Through text analyses, the descriptive responses supported the existing IP sub-dimensions: fake, luck, and discount (Chrisman et al., 1995). Moreover, the text responses elaborated on the *two* major sub-dimensions of IT: fake and competency. Regarding the fake dimensions, IT students perceived negative peer judgment, self-deprivation, and a sense of being lost/overwhelm in the subject. For the competency dimension, we can attribute it to computer programming incompetency, peer competition and comparison, faculty-

student interactions, and others' expectations of IT competence. Future research can enhance the existing IP measurements in the context of IT discipline.

This exploratory study has several important implications. *First*, IT students at the sophomore level, regardless of their IT majors, experience similar levels of IP. More than half of them will have self-doubts about their IT competency and often try to hide these feelings. In highly technical fields, including other STEM majors, feelings of inadequacy and not belonging can be more widespread than previously thought. IT educators and undergraduate advisors need to reduce these inferior feelings earlier during the critical stage of student retention. Since high-level programming and advanced IT skills are taught later in the junior and senior years, educators should focus on changing perceptions of IT self-efficacy and individual confidence while fostering a sense of belonging at an earlier stage of students' learning.

Second, two sub-facets of IP dimensions stand out. One, the self-perception of being fake, or of not being viewed as capable, is caused by self-perception, i.e., the perception of negative judgment, self-deprivation, or not being good/competent enough. On the other hand, the competency dimension likely stems from comparisons with the surrounding environment, especially in faculty-student interactions, peer competition, and societal expectations. For IT educators and undergraduate advisors, this is good news. Faculty-student interactions, peer competition, as well as societal expectations are shapeable through confidence building and social intervention. For example, IT departments can establish positive faculty-student rapport, establish peer mentoring, or professional mentoring for IT students. The department can work closely with potential employers or industry advisory groups to establish a professional mentoring or job shadowing program, thereby reducing anxiety, self-doubt, and career pressure.

Third, even though the IP of both groups shows no significant differences, Table 3 reveals interesting insights. For CS, *ip7* has the highest mean, while *ip17* is the *lowest*. On the contrary, ip17 has the *highest* mean value for non-CS. Is it possible that the top IP concern for CS students has something to do with their internal self-*perceptions of competence*? Therefore, our coping strategies for IP can differ depending on the nature of the IT curriculum; for example, focusing more on programming and technical skills may be more important for sophomore CS students, whereas establishing peer rapport or participating in student activities may help non-CS students better cope with their sense of belonging and social comparison. Additional data is needed.

And lastly, the feeling of not belonging or of being an outsider is echoed by female and minority students. The IT discipline has been white and male-dominated, but it is gradually changing. Based on our qualitative data, cultivating a sense of belonging for female and minority students may help reduce feelings of IP. It would be interesting for future research to focus on the IP of female/minority students.

Future research could measure IP across other STEM majors and compare them with IT majors. Qualitative content analysis (Drisko & Maschi, 2016) or a formal mixed-methods design will deepen our investigation of IP and broaden our data collection to include freshmen, juniors, seniors, and IT professionals. Other research variables, such as self-perception, self-identity, or self-efficacy, could potentially be theorized as predictor or criterion variables. Additionally, the rampant use of generative AI among students and its effects on IP experiences could yield interesting findings.

6. CONCLUSION

The study examines IP among second-year undergraduate IT students and finds that nearly half of Computer Science, Information Systems, and Cybersecurity majors exhibit 'frequent' (about 46 percent) to 'intense' (nearly 11 percent) levels of IP experience. IP exists not only among professionals but also among IT students. Other underlying factors of IP—beyond the existing IP sub-dimensions of fake, discount, and luck—also stem from peer comparisons and competition, inadequate programming skills, faculty-student interactions, and societal IT expectations. Educators and researchers can explore or reexamine these factors to attract and retain qualified or future IT students.

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APPENDIX A

Modified Clance's Impostor Phenomenon Scale (1995) in IT Context

ip1: I have often succeeded on a test or task even though I was afraid that I would not do well before I undertook the task.
ip2: I can give the impression that I'm more competent in IT than I really am.
ip3: I avoid evaluations or tests if possible and have a dread of others evaluating me.
ip4: When my IT peers praise me for something I've accomplished, I'm afraid I won't be able to live up to their expectations of me in the future.
ip5: I sometimes think I obtained my current grades or gained my present success because I happened to be in the right place at the right time or knew the right people.
ip6: I'm afraid my IT peers may find out that I'm not as capable as they think I am.
ip7: I tend to remember the incidents in which I have not done my best more than those times I have done my best.
ip8: I rarely do a project or task as well as I'd like to do it.
ip9: Sometimes I feel or believe that my success in IT courses and major has been the result of some kind of error.
ip10: It's hard for me to accept compliments or praise about my intelligence or accomplishments.
ip11: At times, I feel my success has been due to some kind of luck.
ip12: I'm disappointed at times in my present IT accomplishments and think I should have accomplished much more.
ip13: Sometimes I'm afraid others will discover how much IT knowledge or ability I really lack.
ip14: I'm often afraid that I may fail at a new IT assignment or exam even though I generally do well at what I attempt.
ip15: When I've succeeded at something or received recognition for my accomplishments, I have doubts that I can keep repeating that success.
ip16: If I receive a great deal of praise and recognition for something I've accomplished, I tend to discount the importance of what I've done.
ip17: I often compare my ability to those IT peers around me and think they may be more intelligent than I am.
ip18: I often worry about not succeeding with a project or examination, even though my IT peers around me have considerable confidence that I will do well.
ip19: If I'm going to receive a good grade or gain recognition of some kind, I hesitate to tell my IT peers or others until it is an accomplished fact.
ip20: I feel bad and discouraged if I'm not "the best" or at least "very special" in situations that involve achievement.