

Is Updating Play or Work? The Mediating Role of Updating Orientation in Linking Threat of Professional Obsolescence to Turnover/Turnaway Intentions

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ABSTRACT

This study proposes that IT professionals' behavioral orientation towards IT knowledge and skills updating demands can take on two contrasting forms: updating-as-play or updating-as-work. Drawing on threat-rigidity theory (Staw, Sandelands, & Dutton, 1981), the authors hypothesize that IT professionals who feel threatened by professional obsolescence are more likely to approach updating-as-work more than as play. Results from a sample of IT professionals are consistent with threat-rigidity theory (Staw et al., 1981) in that the threat of professional obsolescence is negatively related to updating-as-play and is positively related to updating-as-work. The authors also find that updating-as-play is negatively related to turnaway intentions and that updating-as-work is positively related to turnover intentions; these findings are consistent with IT theories of job mobility. The authors conclude this study with a discussion of these results and propose future research directions.

Keywords: IT Professionals, Play, Threat of Professional Obsolescence, Turnaway, Turnover, Updating Orientation

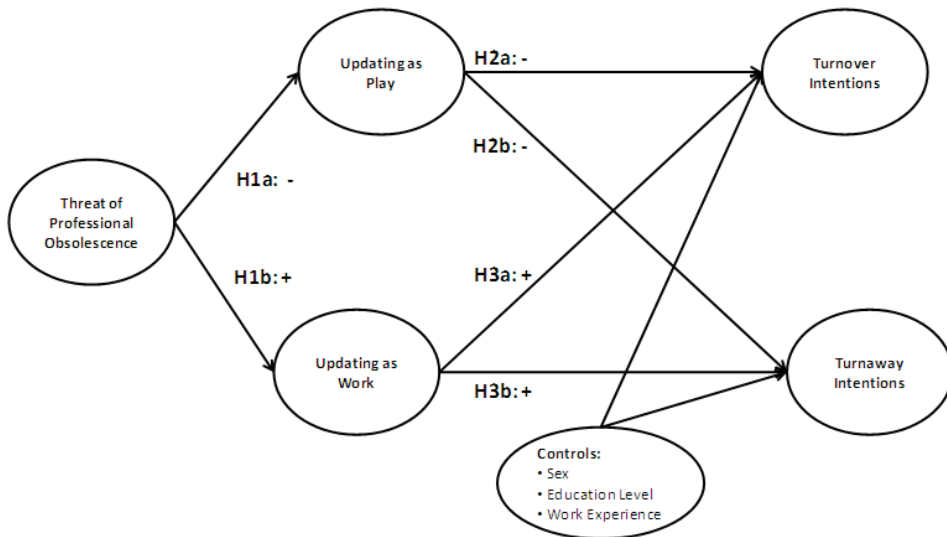
INTRODUCTION

The threat of professional obsolescence remains an endemic challenge for IT professionals (Lee, Trauth, & Farwell, 1995; Nelson, 1991; Tsai, Compeau, & Haggerty, 2007). Unlike in other professions where knowledge and skills erode more slowly, the half-life of knowledge and

skills in the IT profession is estimated at about two years (Ang & Slaughter, 2000; Dubin, 1990). The IT professional is therefore subjected to a continuous threat of professional obsolescence (Tsai et al., 2007), and must update their knowledge and skills continuously to remain productive in the IT profession. Otherwise, their IT careers may stagnate, or even decline, in terms of employability, promotability, and compensation.

DOI: 10.4018/ijsoedit.2011100103

Figure 1. Research model



Despite the importance of updating behaviors associated with the IT profession, limited theoretical and empirical research exists on updating behaviors—be it its ontology, etiology, structure, or consequences. Hence, we begin a program of research by asking: how do IT professionals perceive and approach updating?

We draw on the concept of play (Mainemelis & Ronson, 2006) to propose two distinct behavioral orientations towards updating: “updating-as-play” and “updating-as-work.” We examine how each updating orientation is affected by the threat of professional obsolescence and how it subsequently affects job mobility intentions. In doing so, this study responds to a recent call by Joseph, Ng, Koh, and Ang (2007, p. 555) to examine antecedents of job mobility that are particularly germane to the IT discipline. As noted by Joseph et al. (2007), prior IT research on the job mobility intentions are limited in their contributions as the antecedents examined are similar to those that have been identified in the general organizational behavior literature. Therefore, this study contributes to the IT discipline by proposing that updating orientation is associated with job mobility intentions of IT professionals.

The study also contributes to existing theory on updating by examining the consequences of updating orientation on job mobility intentions.

THEORETICAL FOUNDATION AND HYPOTHESES DEVELOPMENT

Figure 1 presents the research model governing this study. It shows the hypotheses and the systems of relationships among the hypotheses.

Threat of Professional Obsolescence and Updating Orientations

Professional obsolescence is defined as the erosion of professional knowledge and skills required for successful performance (e.g., Dubin, 1990; Ferdinand, 1966; Glass, 2000). To manage the threat of professional obsolescence, IT professionals are constantly required to learn and stay up-to-date with the latest technologies in the IT field (Tsai et al., 2007). How IT professionals view and approach updating is not well-understood. To address this gap, we draw on the concept

of play orientation (Mainemelis & Ronson, 2006) to propose two distinct ways by which IT professionals approach updating: updating-as-play or updating-as-work.

Mainemelis and Ronson (2006, p. 85) define play as “a patterned behavioral orientation” (p. 85) towards performing any type of activity. A play orientation is characterized by five interdependent elements: positive affect; loose and flexible association between means and ends; freedom from external constraints; non-institutionalized boundaries of time and space; and a threshold experience. Updating-as-play is also expressive in nature in that updating is perceived as intrinsically rewarding. Because updating is seen as play with highly positive emotions such as “fun, relaxation, ecstatic joy, or emotional relief” (Mainemelis & Ronson, 2006, p. 91) updating is pursued as a goal in and of itself. When updating is seen as play, updating behaviors are driven not by efficiency or by specific goals – they are free from job constraints and can be undertaken at any time or place. In support of the updating-as-play concept, Pazy (1996, p. 1195) found that some technology professionals regard updating as “fun,” a break from routine, “rest and relaxation” and “a private pleasure” (p. 1195).

By contrast, updating-as-work is instrumental and efficiency-oriented (Glynn, 1994). When updating is seen as work, updating is tightly coupled with task performance and is undertaken only when it is absolutely required for task completion. Thus, updating-as-work is a task-focused and needs-based endeavor that is seldom accompanied by positive emotions. Evidence of the updating-as-work orientation can also be found in Pazy (1996, p. 1176), where it was reported that some technology professionals update only in areas “directly relevant to current tasks” (p. 1176).

The theory of threat-rigidity predicts how IT professionals would approach updating. The theory posits that a threat perceived by an individual elicits behavioral responses that tend to be less varied or more rigid (Staw et al., 1981). These responses are the result of restricting information processing and constricting

control. In restricting information processing, individuals narrow their field of attention, reduce the sources of information, or depend on prior experiences. They narrow the scope of knowledge and information processing to their area of specialization at the expense of the broader scope of IT professional knowledge (Kozlowski & Farr, 1988; Pazy, 1994; Steiner & Farr, 1986). In constricting control, individuals shorten the time horizon to the present to alleviate the threat by perceiving a sense of security and protection within a temporarily unchanging bubble (Pazy, 1996).

Therefore, the more IT professionals regard professional obsolescence as a threat, the greater their tendency to narrow their field of attention to current tasks and divert away from exploratory and scanning activities (Joseph & Ang, 2001). Moreover, perceptions of threat trigger psychological stress and anxiety that inhibit positive affect. Thus, we expect that perceptions of the threat of professional obsolescence will trigger a work orientation towards updating and hinder a play orientation towards updating.

Hypothesis 1: The threat of professional obsolescence is H1(a) negatively related to updating-as-play; and H1(b) positively related to updating-as-work.

Updating Orientation and their Consequent Job Mobility Intentions

There is limited research extending concepts of play and threat-rigidity theory to the consequences of updating orientation. Therefore, this study provides us the opportunity to contribute to extant literature by linking the updating orientation of IT professionals with their subsequent job mobility intentions. In this paper, we examine two forms of job mobility intentions: a) turnover intentions – defined as individuals’ intentions of holding the same or similar jobs in different organizations; and b) turnaway intentions – defined as individuals’ intentions of changing one’s profession or occupation (Joseph, Boh, Ang, & Slaughter, in press).

Although updating-as-play is not goal-driven, it results in an improvement of domain-relevant skills (Mainemelis & Ronson, 2006). A play orientation towards updating broadens IT professionals' repertoire of knowledge and skills, enables them to discover unnoticed variables and opportunities, explore task-related behaviors, and achieve continuously higher levels of mastery (Mainemelis & Ronson, 2006). Thus, updating-as-play maintains IT professionals' currency of IT knowledge and skills. IT theories of job mobility (Joseph et al., 2007) have posited and concluded that skills development reduces turnover intentions by increasing IT professionals' job satisfaction and embeddedness in the organization. In the same vein, we expect updating-as-play to reduce turnaway intentions by increasing IT professionals' embeddedness within the IT profession (Joseph et al., in press). Hence,

Hypothesis 2: Updating-as-play is negatively related to H2(a) turnover intentions; and H2(b) turnaway intentions.

Following the arguments based on the concept of play (Mainemelis & Ronson, 2006), we postulate that IT professionals who "update-as-play" would do so continually. On the other hand, IT professionals who "update-as-work" would update more intermittently and, therefore, are less likely to be up-to-date in their IT knowledge and skills. Human capital theory (Becker, 1975) suggests that the lack of up-to-date IT knowledge and skills would reduce levels of job performance. In turn, the lowered job performance of IT professionals has been related with reduced job satisfaction and thus, greater turnover intentions (Joseph et al., 2007).

The lack of up-to-date IT knowledge and skills would also narrow the range of job alternatives within the IT profession (Joseph et al., 2007). As alternative jobs within IT become limited, IT professionals may seek a career change as a response to the threat of professional obsolescence (Pazy, 1990; Tsai et al., 2007). A

career change reduces subsequent professional obsolescence as occupation-specific knowledge and skills in other non-IT professions erode less rapidly (Dubin, 1990). In addition, IT professionals who have turned away from the IT profession to non-IT line positions become valued "power-users" in these line functions (Reich & Kaarst-Brown, 1999, 2003). Hence,

Hypothesis 3: Updating-as-work is positively related to H3(a) turnover intentions; and H3(b) turnaway intentions.

METHOD

Data Collection

The approach taken to test the hypotheses was a field study using survey methodology. We approached twenty-nine (29) organizations and gave ten questionnaires to each of the organizations to be distributed to their IT professionals. The 29 organizations were firms that employed IT professionals who attended an evening part time MBA program in a university situated in Singapore. Of the 290 questionnaires distributed, 181 usable questionnaires were returned, yielding a response rate of 62.4%.

Sample

The respondents were on average 30.3 years old ($SD = 4.29$ years) with an average working experience of 6.5 years ($SD = 4.34$ years). Their average organization tenure was 3.10 years ($SD = 3.40$ years). The sample comprised of 76.2% males and 23.8% females. Of the 181 IT professionals in the sample, 16.6% were non-graduates, 71.8% attained a Bachelor's degree and the remaining 11.6% possessed a post-graduate degree. The IT professionals surveyed held job roles in both systems development (e.g., applications development managers, systems analyst, and programmers) as well as IT infrastructure (e.g., data center managers, network managers, and database administrators).

Measures

The questionnaire contained multiple measurement items relating to each of the constructs in the research model. Wherever possible, we used scales validated in previous studies. For the remaining constructs, we used sets of items generated based on reviews of prior relevant literature. For all items, respondents were asked to indicate the extent to which they agreed or disagreed with the statements on a seven-point Likert-type scale, anchored by “1” = “Strongly disagree” and “7” = “Strongly agree.” A full list of items is provided in the Appendix.

The dependent variables of *Turnover Intentions* and *Turnaway Intentions* were measured with five items each adapted from Rusbult, Farrell, Rogers, and Mainouss (1988). Examples of items measuring *Turnover Intentions* include: “I have spent some time looking for another IT job” and “I will probably look for a new IT job outside my current company.” Examples of items measuring *Turnaway Intentions* include: “I have spent some time looking for another non-IT job” and “I am considering quitting my current job for another non-IT job.”

The independent variables are *Threat of Professional Obsolescence*, *Updating-as-play* and *Updating-as-work*. The *Threat of Professional Obsolescence* was measured with five items based on research by Pazy (1990, 1994, 1996). Examples of items measuring this construct include: “I feel the threat of professional obsolescence” and “I fear technical obsolescence”.

We developed the measures of *Updating-as-Play* and *Updating-as-Work* from the qualitative studies of coping with professional obsolescence by Pazy (1990) and Tsai et al. (2007). Examples of items measuring *Updating-as-play* include: “Updating is not tiring” and “Updating gives me tremendous pleasure”. Examples of items measuring *Updating-as-work* include: “I feel that updating is not necessary unless it is relevant to my current job requirements” and “I am not at all concerned with updating unless developments are in my area of specialization.”

The covariates in the model were Sex, Educational Level and Work Experience. *Sex*

was measured with a dichotomous variable indicating Male as “1” and Female as “0”. *Educational Level* was measured with a four level ordinal variable with “1” indicating High School Diploma, “2” indicating Bachelors degree and “3” indicating Postgraduate Degree. Finally, *Work Experience* was measured with a continuous variable indicating the total labor force experience held by an individual.

Data Analysis

We used partial least squares (PLS) to analyze the measurement and structural models. PLS is suited for this study because it combines principal component analysis, path analysis, and regression to simultaneously evaluate theory and data (Chin, 1998; Hulland, 1999). Data analysis with PLS begins with the assessment of the measurement model followed by the assessment of the structural model. In assessing the measurement model, we examine the construct validity in terms of convergent and discriminant validities. The measurement model is also evaluated by examining the predictive and explanatory powers of the model (Gefen, Straub, & Boudreau, 2000). Finally, we conducted a bootstrapping test to compute estimates of standard errors for testing the statistical significance of path coefficients using t-tests.

RESULTS

Measurement Model

The acceptability of the measurement model is assessed by internal consistency between items and the model’s convergent and discriminant validity. The composite reliability values of all constructs were close to or above 0.90, indicating high internal consistency (Bagozzi & Yi, 1988). Convergent and discriminant validities are assessed with the following criteria: (1) the square root of the average variance extracted (AVE) by a construct from its indicators should be at least 0.707, i.e., AVE itself should be greater than 0.5; (2) The square root of the AVE should be greater than the variance shared between the

Table 1. Descriptives, inter-construct correlations and results of convergent and discriminant validities

			N									
	Mean	SD	Items	CR ^a	AVE ^b	1 ^c	2	3	4	5	6	7
1 Turnover Intentions	3.441	1.439	4	0.894	0.631	0.794						
2 Turnaway Intentions	2.872	1.524	4	0.937	0.750	0.381 ***	0.866					
3 Threat of Professional Obsolescence	3.961	1.567	3	0.927	0.808	0.267 ***	0.132	0.899				
4 Updating as Play	2.751	1.370	3	0.905	0.761	0.109	0.109	0.184 *	0.872			
5 Updating as Work	4.343	1.312	4	0.915	0.730	0.071	-0.358 ***	-0.229 **	-0.268 ***	0.854		
6 Sex	1.238	0.427	1			-0.083	0.096	-0.042	-0.031	-0.032		
7 Education Level	2.939	0.559	1			0.001	0.023	0.004	-0.046	-0.074	-0.125	
8 Work Experience	6.465	4.339	1			-0.151 *	-0.021	-0.068	0.059	-0.030	-0.055	-0.127

^a Composite Reliability; ^b Average Variance Explained; ^c Emboldened numbers on the diagonal are the square root of AVE.

Off-diagonal elements are correlation among constructs.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

construct and other constructs in the model; and (3) standardized item loadings should be greater than 0.70 (Fornell & Larcker, 1981). The square root of AVE for each construct was greater than 0.707, all constructs shared more variance with their own indicators than with those of other constructs and that the items load highly, based on established guidelines (Hair, Anderson, Tatham, & Black, 1995), on respective constructs are above 0.80 and are statistically significant at the 0.001 level.

Analysis of the Structural Model

Table 1 presents the descriptives and correlations of variables in the model. Figure 2 presents the results of the hypothesized structural model, which may be interpreted as standardized betas. In addition, the predictive strength of a hypothesized model can be assessed with its total explained variance. The model explained 6.0% of the total variance in turnover intentions and 13.5% of the total variance in turnaway intentions. In turn, the threat of professional obsolescence explained 5.7% of the total variance in updating-as-play and 4.6% of the total variance in updating-as-work.

Hypothesis 1a posits that the threat of professional obsolescence is negatively related to updating-as-play and Hypothesis 1b posits that the threat of professional obsolescence is positively related to updating-as-work. Supportive of our hypothesis, we find that the threat of professional obsolescence is negatively related to updating-as-play ($\beta = -0.248$, $t = 2.685$, $p <$

0.01). In addition, the threat of professional obsolescence is positively related to updating-as-work ($\beta = 0.215$, $t = 3.021$, $p < 0.01$). Additional analysis of the difference between the estimated path coefficients of updating-as-play and updating-as-work indicates that IT professionals favor the latter over the former as a response to the threat of professional obsolescence ($t = -26.034$, $df = 179$, $p < 0.001$).

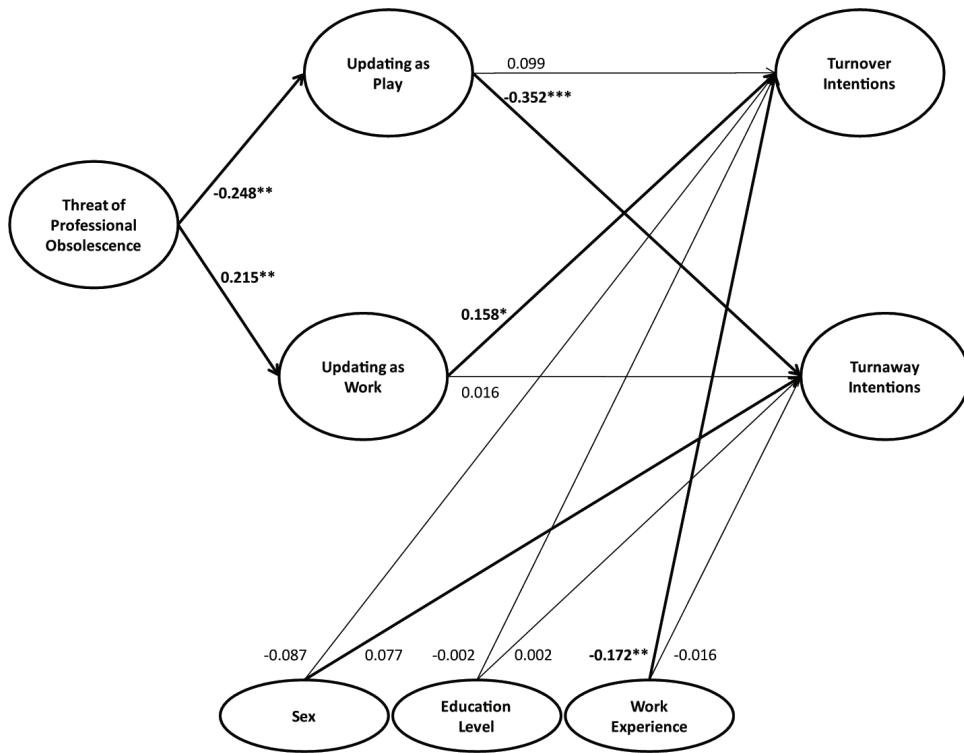
Hypotheses 2a and 2b posit that updating-as-play is negatively related to both turnover intentions and turnaway intentions respectively. We find that updating-as-play is negatively related to turnaway intentions ($\beta = -0.352$, $t = 4.367$, $p < 0.001$). However, we find that updating-as-play is not significantly related to turnover intentions ($\beta = 0.099$, $t = 0.926$, ns).

Hypothesis 3a and 3b posits that updating-as-work is positively related to both turnover intentions and turnaway intentions. In support of Hypothesis 3a, we find that updating-as-work is positively related to turnover intentions ($\beta = 0.158$, $t = 2.032$, $p < 0.05$). However, we find that updating-as-work is not significantly related to turnaway intentions ($\beta = 0.016$, $t = 0.184$, ns).

DISCUSSION AND CONCLUSION

To date, there is scant research that has focused on how IT professionals respond to the threat of professional obsolescence (Pazy, 1990; Tsai et al., 2007). In this study, we introduce the idea that IT professionals respond to the threat of

Figure 2. Results



* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

professional obsolescence by initiating updating behaviors. We propose that IT professionals hold one of two forms of updating orientations: some regard updating as work while others tend to view updating as play. Drawing on threat-rigidity theory (Staw et al., 1981), we find that IT professionals who feel threatened by professional obsolescence favor updating-as-work over updating-as-play.

We also took the opportunity in this study to examine the patterns of job mobility intentions associated with each of the two forms of updating orientation. Consistent with our hypotheses, we find that updating-as-work is positively related to turnover intentions while updating-as-play is negatively related to turnaway intentions.

Contrary to our expectations, we find that although updating-as-play deters turnaway in-

tentions, it is not related to turnover intentions. Presumably turnover intentions are related to factors other than updating-as-play orientation. One possible factor could be the quality of the current employer's updating climate (Kozlowski & Farr, 1988; Kozlowski & Hults, 1987). Organization updating climate represents IT professionals' socially influenced perception of professional development support in terms of technologies, management policies, supervisor practices, and other salient work environment features (Kozlowski & Hults, 1987; Potosky & Ramakrishna, 2002). In essence, organization updating climate provides IT professionals with psychological support to acquire new and up-to-date IT knowledge and skills (Schambach, 1994). We believe that the quality of an organization's updating climate could predict

an IT professional's turnover intentions than updating orientations such as updating-as-play.

Our study also revealed that while updating-as-work is associated with higher turnover intentions, it is not related to turnaway intentions. A possible reason for this pattern of results might be that updating-as-work results in a targeted set of IT knowledge and skills that may be valued by other potential employers in the external labor market (Mithas & Krishnan, 2008). With organizations willing to pay a premium for IT experience in other firms, IT professionals, even those without up-to-date knowledge and skills, may be able to secure alternative employment; perhaps in organizations that have less demanding IT skills requirements. With available job alternatives in the external labor market, IT professionals may not be harboring thoughts about leaving the IT profession.

We would like to propose other areas for future research. First, one should examine more closely the role of organization updating climate in the updating-as-play to job mobility relationship. Specifically, future research could examine whether organization updating climate provides IT professionals with the latitude to experiment with the latest information technologies, and thereby, curbing their intentions to turnover or turnaway.

Second, future research could examine whether IT professionals with less up-to-date IT knowledge and skills do turnover to less demanding work environments. Extending this line of inquiry, future research could also estimate the financial returns to human capital (e.g., compensation packages) associated with possessing up-to-date IT knowledge and skills.

Finally, future research could examine other outcomes in addition to job mobility. Specifically, future research could determine whether job performance (in-role; helping; citizenship; counterproductive work behaviors) is related to updating orientations and perceived threat of professional obsolescence.

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APPENDIX

The following are the set of items utilized in this study.

Turnover Intentions

1. I have spent some time looking for another IT job.
2. I will probably look for a new IT job outside my current company.
3. Where my employer does not keep his promises I think a lot about leaving the company for another IT job.
4. I often think about leaving the company for another IT job.
5. I am considering quitting my current job for another IT job.

Turnaway Intentions

1. I have spent some time looking for another *non*-IT job.
2. I will probably look for a new *non*-IT job outside my current company.
3. Where my employer does not keep his promises I think a lot about leaving the company for a *non*-IT job.
4. I often think about leaving the company for a *non*-IT job.
5. I am considering quitting my current job for another *non*-IT job.

Threat of Professional Obsolescence

When there are new developments in technology and knowledge in the IT field, ...

1. ... I fear of technical obsolescence.
2. ... I feel intimidated.
3. ... I feel the threat of obsolescence.

Updating-as-Play

1. I update for fun.
2. Updating gives me tremendous pleasure.
3. Updating is not tiring.
4. Updating is a way to relieve myself from the routine of work.
5. Reading an IT journal is rest and relaxation.

Updating-as-Work

When there are new developments in technology and knowledge in the IT field, ...

1. ... I feel that updating is not necessary unless it is relevant to my current job requirements.
2. ... Updating can wait until I have time to devote solely to learning.
3. ... I am not at all concerned with updating unless developments are in my area of specialization.

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