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FACTORS FOR ASSESSING PROSPECTIVE DOCTORAL APPLICANT READINESS

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Abstract:

Doctoral program admissions management is universal yet rarely addressed in Information Systems literature. Readiness, a concept well-established in educational theory, is a compelling theory upon which to further professionalize the process of reviewing application portfolios. We propose a literature-based, extensible assessment rubric for reviewing doctoral program applicant materials based on the concept of research readiness. The rubrics pay particular attention to universal competencies required for progressing from students to future IS research professionals. Unifying assessment standards for doctoral admissions facilitates faculty decision-making, while creating clear standards for prospective candidates on expectations for minimum requirements.

Keywords: Doctoral Admissions; Assessment; Rubrics; Research Readiness

I. INTRODUCTION

Supply and demand of doctoral candidates in Information Systems (IS) is a long-running topic of interest and discussion (Freeman et al. 2000; Frolick et al. 2005; Jarvenpaa et al. 1991). In spite of its foremost position in the IS researcher pipeline, enrollment management of applicants to PhD programs is under-addressed in literature (Johansson et al. 2014). This is driven by several competing realities, including large differences in the evaluation and admissions process across international programs (Jones 2013; Michel et al. 2019); differing standards and processes in similar national programs (Cano et al. 2018); differing criteria between programs with a managerial focus and those with a technical focus (Jones 2013); and a relative importance of soft criteria like 'fit' for faculty research and personality characteristics (Cano et al. 2018; Posselt 2014). Competitive forces outside of application packets like regional competition or market need which defy comparison have also been pointed out as admissions trends (Wall Bortz et al. 2020).

Challenges of comparability of the admission process aside, a standardizable assessment system for enrollment management is meritorious. The lack of systematic reviews of admissions and its evaluation process leaves no overarching guidance available for programmatic comparison, or for creating new or retooling existing IS doctoral programs. At a time when equity and diversity drive efforts to broaden the IS field (Trauth et al. 2018), supporting standardization and comparability, along with a holistic perspective of who might be ready for research in the junior researcher pipeline is timely (Hall et al. 2021). Further, some research points out a mismatch in doctoral candidate readiness and dropping out. An eye-popping rate of 40% premature termination of doctoral students has been reported in a multitude of studies (Ali and Kohun 2006; Álvarez-Montero et al. 2014; Gardner 2009; Jiranek 2010). In terms of research administration and resource management, junior researchers prematurely terminating their projects before completion is a worst-case scenario. It is also not difficult connect the dots between candidate readiness and the looming graduate student mental health crisis (Evans et al. 2018; Nature 2019) in terms of both premature termination or failed candidacy examinations as

well as overall productivity (Cunningham-Williams et al. 2018). Though some excellent rubrics exist for university-wide enrollment management (Mathur et al. 2019), a gap in our knowledge of effective enrollment management for IS doctoral programs exists.

This work proposes assessment criteria based on the concept of applicant readiness; we ask and answer: What does it mean to demonstrate readiness for doctoral-level research in Information Systems? Prior work examines how applicants can be evaluated for admission into doctoral programs. We systematically define readiness for IS programs in Literature Review. The section Rubric proposes operationalization of the proposed attributes and suggests evaluation metrics in use at a mid-sized American research university. Our rubric synthesizes the extant literature to form a systematic measurement tool that admissions committees can use to provide better recommendations. In Discussion, we contextualize the proposal for use, followed by Limitations and Conclusions.

II. LITERATURE REVIEW

RESEARCH READINESS

'Readiness' is a concept that has been common in education theory and practice for several decades. Most research focuses on readiness at the K-12 level. Several models and assessment plans exist for college or career readiness which concerns itself with the transition from high school to university or first jobs (Wiley et al. 2011; Wyatt et al. 2011). At the university student level, readiness rubrics tend to consider readiness for the professional workforce (Cabellero and Walker 2010) where some works concentrate on research (Gazley et al. 2014). Still, the primary objectives transfer well independent of university stage. Though definitions vary, readiness generally refers to a combination of foundational cognitive and content elements and an ability to learn and transfer that learning forward (Conley 2012). Some baseline knowledge or proficiency is necessary as a minimum foundation upon which to acquire further knowledge. It is broadly agreed upon that different students do not need the same proficiency in all areas, but rather some tailoring is expected and required to meet individual circumstances and goals; however, individual students should be able to achieve these goals with minimal remediation (Conley 2007). Moreover students who demonstrate readiness can understand what is expected of them and use those takeaways to develop new knowledge, and they understand the norms and structure of their environment and use this understanding to further their own learning pathway (Conley 2007, 2012).

Taken together, readiness is a series of behaviors and attitudes leading to concrete skills (Ivanitskaya et al. 2004). The dual challenge becomes applying this model to doctoral level readiness in the IS domain. Information Systems is, at its core, a discipline centered in technology (Orlikowski and Iacono 2001). While not all students are required to master all the technical courses, they should be familiar with the contents as a function of their role in an IS department. Readiness for IS research with minimal remediation implies some baseline knowledge about or exposure to the research domain combined with an interest in learning more about how to complete research in a specific technical domain (Baker and Pifer 2015; Jones 2013). Readiness in an IS context therefore minimally requires technical interest and competency in order to further develop content mastery in the PhD (Freeman et al. 2000; Frolick et al. 2005).

Potential to contribute to research can be seen a foundational attribute necessary for a successful candidacy (Grover 2007) and is thus similarly a foundational assessment strategy for assessing student portfolios (Cano et al. 2018; Posselt 2014). Readiness for IS doctoral research also implies baseline writing fluency. Writing is a key competency in IS as well as scientific domains broadly (Perkins and Lowenthal 2014; Wyatt et al. 2011). Ability to understand and partake in scientific communications by building on existing communication skills and new scientific knowledge is a skill that can be expected of doctoral candidates, thus can be expected as a reasonable point of assessment for student portfolios (Johansson et al. 2014). Moreover, professional academic norms are generally understood to be high in independence and initiative.

Common roadblocks experienced by doctoral candidates are closely linked to self-management throughout the PhD lifecycle (Grover 2001, 2007). Successfully coping with academic requirements, fears around publish-or-perish environments, successfully initiating projects and partnerships, and other facets of academia that are required to have an individual scientific contribution all require that the candidate understand and accordingly structure their time and environments (Jones 2013).

QUANTIFIABLE VS SUBJECTIVE ELEMENTS IN GRADUATE ADMISSIONS

Typical admissions committees review a series of documents prepared by the candidate, including a CV(resume), quantitative aspects like standardized test scores, transcripts with grade history, language tests as applicable, and subjective elements like letters of recommendation and statement of purpose (Mathur et al. 2019; Michel et al. 2019; Perkins and Lowenthal 2014). Less common elements applicants may include certifications, writing samples like authored theses or reports, published research works, or digital work portfolios (e.g., GitHub profiles). This work makes a distinction between written research works (published research, reports, or writing samples) by applicants and the personal statement as conceptually different. In-person or digital interviews are common across doctoral programs for candidates who pass the document review phase (Michel et al. 2019). Holistic admissions reviews are increasingly common but score-rated portfolios are still in place broadly speaking (Wall Bortz et al. 2020); as well as intuition-driven admission decisions.

Of the submitted elements, standardized test scores like the GRE or GMAT are one of the most common aspects across programs (Michel et al. 2019). GRE scores have an established relationship with successful degree completion outcomes (Wallace 2018), making the scores easily interpretable. This is likely the driving force behind the unified understanding of importance of strong scores across faculty and students (Chari and Potvin 2019; Jones et al. 2020). However, in holistic portfolios reviews standardized test scores are not a sole weighting factor, and some research raises questions on the GRE or GMAT's predictive nature in successful outcomes (Micceri 2002). More recently questions have been raised on if standardized tests are a barrier to admissions for underrepresented students as well (Hall et al. 2021). While programs may weight grade history differently, transcripts are able to display a record of student success and perseverance for faculty reviewers (e.g., records of course completions compared to dropped classes, level of courses completed, or time to degree) (Jones et al. 2020; Michel et al. 2019). Transcripts can also give a partial record of access to research opportunities, class rank, and overall academic progress (Johansson et al. 2014; Walsh 2018).

Authored works like writing samples, project reports or theses are also commonly included elements in doctoral application portfolios, though there is significant heterogeneity in which works count in this area and how they are evaluated (Álvarez-Montero et al. 2014; Mathur et al. 2019; Perkins and Lowenthal 2014). The online PhD at Boise State reports that requiring a professional writing sample is declarative of the importance of writing to doctoral studies (Perkins and Lowenthal 2014), while Wayne State University reports evaluating the writing sample for the purpose of assessing writing quality (Mathur et al. 2019). Few studies systematically review the requirements and predictive quality of writing samples on successful completion of a doctoral degree. Several reasons for this exist, including more technical programs which may not require additional writing samples, non-comparability of types of documents submitted, and closely linked to that, questions around evaluating writing ability in the case of multi-author publications or assignment/thesis reports.

Letters of recommendation and personal statements are more subjective elements of a typical application. Letters of recommendation are considered differently depending on the institution of the letter writer and the reputation of the writer themselves; qualitative notions of strength of recommendation are also considered as an evaluation metric by admission committees (Chari and Potvin 2019; Jones et al. 2020). These elements are all highly localized, and pose unknowable risks to the applicant (Chari and Potvin 2019). Furthermore, letters of recommendation can be seen as a type of subjectivity by the applicant, as it can be assumed that

the applicant will only make requests of letter writers who will be favorable to them (Michel et al. 2019). This makes their evaluation for use in a risk-mitigating assessment of the candidate fraught at best (Posselt 2014, p. 494). Likewise, personal statements are highly curated documents. If personalized instead of generic application letters are requested, the given prompts are often broad to the point of being ambiguous (Michel et al. 2019). While nearly universally required, there are few standards against which to assess their actual predictive value for successful completion of doctoral studies.

Simultaneously critically important for a successful experience (Grover 2007; Pyhältö et al. 2015) but hard to define in terms that are neither nebulous nor exclusionary (Posselt 2014) is the concept of 'fit' (Hall et al. 2021). Fit goes beyond traditional concepts of readiness for transitioning from undergraduate or masters work into doctoral level work (Lovitts 2005, 2008; Perkins and Lowenthal 2014). It encompasses interpersonal aspects like grit and determination (Walsh 2018), personality and drive (Álvarez-Montero et al. 2014; Posselt 2014; Scherr et al. 2017), and the matching of research goals with the current faculty in the program (Chari and Potvin 2019). While fit has been established to be determinative of experience and successful outcomes in graduate school (Gardner 2009; Gazley et al. 2014; Jones 2013), overly strict assessments of fit or undue weighting of this fully subjective factor can lead to undesirable outcomes like less diverse incoming student cohorts (Posselt 2014; Purdie-Vaughns et al. 2008). Álvarez-Montero and colleagues (2014) state a need for more study of personality factors that predict performance in doctoral admissions as a mechanism to support this effort. Baker and Pifer (2015) propose a three-factor model of person-environment, person-culture, and person-vocation fit for doctoral studies. While fit is ultimately the most subjective assessment element, it is also one of the most common topics in assessments of doctoral programs across the academy (Baker and Pifer 2015; Pyhältö et al. 2015).

III. RUBRIC

Several common models for graduate admissions exist. They span the range from direct hire by the supervising faculty member, a common practice across the European Union, to committee-based assessments common in the United States or Singapore. Even with committee-based assessments there are differences in models, from variations where the committee requires a faculty member's acceptance of the student to models which allot students an established amount of time to contract with a faculty supervisor. Some of these models have structures such as formalized rotational programs while others admit students into their cohorts without any formal relationship-building structures. Even though the variance in admissions models is high, the principles behind a worthy or talented applicant are generally similar. With this in mind, we propose a rubric for the review and admission of IS doctoral students based on the concept of readiness which is independent of admissions procedure modality.

Our proposed approach to graduate admissions employs a portfolio review strategy, emphasizing the evaluation of multiple criteria using a systematic rubric (Mathur et al. 2019). The goal of the rubric is to provide an outline of the important factors that doctoral admissions committees can use to evaluate prospective IS doctoral students. The rubric represents a combination of objective measures (e.g., exam scores) and subjective measures (e.g., statement of purpose) and provides a framework for evaluating these items to form a holistic evaluation of the applicant's potential in an IS doctoral program.

Each section of the rubric is associated with guiding questions to attempt to answer about applicants to the program about their fit in an IS doctoral program. Each section also contains an example evaluation rubric and suggestions for how evaluations can be made with standard admissions materials. Each rubric is divided into five quality levels. In each, the lowest quality indicates a poor fit for the program, while the highest is reserved for applicants who demonstrate particular excellence in a category.

CALIBRATION

Part of using a rubric and establishing rater reliability is a calibration process, wherein raters are provided examples of applications and given feedback on ratings so that standards are clear. To create the most reliable process for evaluating admissions materials, faculty could be shown good, mediocre, and bad examples for each of the criteria so they are able to consistently evaluate the materials they review. This consistency will aid in evaluation and facilitate better discussions and decisions about candidates.

Using consistent criteria for evaluation can help provide more consistent evaluations than a totally subjective evaluation process. A criterion-based assessment (Lok et al. 2016), such as that outlined in these rubrics, will enable programs to make more consistent decisions based on the materials they review for applicants. It can reduce bias (Blair-Loy et al. 2022) and protect against ordering effects, wherein applications reviewed first are evaluated differently than later applications because expectations or attention level changes after reviewing. Such effects have been studied in grading, and have long shown significant effects (Chase 1968; Shephard 1929).

POTENTIAL TO CONTRIBUTE TO RESEARCH

- Is the applicant already doing research in any discipline?
- Has the applicant participated in a research project through the publication process?
- Has the applicant identified promising research interests?

We encourage using a holistic, non-domain specific view of student research rather than domain-specific research when reviewing for research readiness. Not all doctoral students come equipped with previous research experience and IS applicants may come from undergraduate or graduate programs. As a program frequently housed in the business school, undergraduate IS degrees often provide little-to-no research opportunities (Hall et al. 2021). This can be contrasted with other social sciences disciplines like psychology where exposure to research is a key component of the undergraduate program. Using a broader aperture when assessing previous research exposure can support interdisciplinarity or enrich the skillset or purview of the research group and widen a traditionally smaller applicant pool of IS scholars.

Some research suggests that mismatches between student and evaluator understanding of the importance of prior research exists (Chari and Potvin 2019; Gazley et al. 2014; Young et al. 1990). Such discrepancies suggest that students may inadvertently be placing importance on aspects including prior research experiences that may carry less weight to faculty evaluators (Chari and Potvin 2019). That is despite of the finding that having research experience prior to beginning a PhD program is a helpful predictor of future research productivity (Cunningham-Williams et al. 2018). Having coursework and prior experience with the process of identifying research questions, designing or evaluating research, and/or academic writing—even if their role in the project is small—shows that an applicant is familiar with the process and has some idea what they're getting themselves into.

However, even without previous research experience to point to, an applicant can demonstrate through the personal statement and writing samples that they are prepared to conduct research (Perkins and Lowenthal 2014). Identifying a potential research direction or potential faculty supervisor in the personal statement, even if that direction changes during the program, is one way that applicants can signal their preparedness to conduct research. An applicant who approaches the program with a goal and understanding of the purpose of a doctoral degree will be more prepared than one who aims for a doctorate because they are good at school (Lovitts 2005).

Table 1: Indicators of Research Readiness in an Application Portfolio
(1= Lowest Weight; 5= Highest Weight)

1	2	3	4	5
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<p>Applicant has not demonstrated research experience nor named research direction in the personal statement.</p>	<p>Applicant has participated in research in a classroom or large group setting.</p> <p>Applicant has named research direction but not explained their interests.</p>	<p>Applicant has been involved in some capacity in research outside the classroom. Involvement in non-IS-relevant research falls into this category.</p> <p>Applicant's personal statement articulates a clear research direction or goals.</p>	<p>Applicant has published</p> <ul style="list-style-type: none"> - multi-author research in IS academic outlets - completed a single author research-oriented thesis relevant to the field. 	<p>Applicant has published</p> <ul style="list-style-type: none"> - single-author peer-reviewed manuscript - multiple peer-reviewed manuscripts as co-author - research in top outlets.
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WRITING FLUENCY

- Can the applicant clearly communicate ideas in writing in the language used in the program?

Publishing and disseminating knowledge is an important part of a doctoral students' responsibility (e.g., (Gardner 2009)). This need necessitates writing as one of the core skills needed for future success in IS doctoral programs. Despite its importance for doctoral student and future academic success, most doctoral programs do not allocate time in their curriculum to teach basic writing skills. As such, incoming doctoral students generally need to have an existing level of competence around written communication. This does not have to be a doctoral-level writing fluency, as there is ample opportunity for feedback and growth throughout a doctoral program. That said, a student who comes in lacking foundational writing skills in the program language or a major publishing language will likely struggle to reach the level required of academics.

When making decisions on the rubric for evaluating writing fluency, evaluators must consider co-authorship. If supplementary writing samples are provided (besides the standard personal statement) that have more than one author, the writing skills of the applicant cannot necessarily be inferred from the quality of the manuscript provided. Some nationally recognized language tests that may be used include IELTS, TOEFL, or GRE for English, Zertifikat Deutsch or TestDaF for German, Certificate Nederlands als Vreemde Taal for Dutch, National Certificate of Language Certificate (YKI) in Scandinavia, or Hanyu Shuiping Kaoshi for Mandarin Chinese.

Table 2: Indicators of Writing Fluency in an Application Portfolio (1= Lowest Weight; 5= Highest Weight)

1	2	3	4	5
<p>Applicant does not clearly communicate in writing. Examples include: poor grammar; misused words; vague or unclear writing; too high-level.</p> <p>Standardized</p>	<p>Writing is clear but poorly structured; Sentences are awkward and difficult to read. In need of major editing/revision.</p> <p>Standardized test writing < 50 percentile or A 2</p>	<p>Writing may contain minor typographical or grammatical errors, but no major issues.</p> <p>Any errors do not impede overall readability.</p> <p>Standardized test writing < 70</p>	<p>Strong writing utilizing good paragraph structure, proper grammar and syntax, and is generally error-free.</p> <p>Standardized test writing < 90 percentile or C 1</p>	<p>Excellent or compelling writing, with clear paragraph structure, sentence structure, punctuation, and grammar.</p> <p>No identified proofreading</p>

test writing < 30 percentile or A1 level	level	percentile or B 1 or B 2 level	level	errors. Standardized test writing >= 90th percentile or C 2 level
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TECHNICAL INTEREST AND COMPETENCY

- Does our program match the applicant’s stated research interests?
- Has the applicant demonstrated technical capability that will allow them to succeed in our IS doctoral program?

Doctoral-level work focuses on becoming an expert in a given area. This expertise is developed through long hours of intense concentration on a single topic. Passion for the subject matter is an important factor in motivating perseverance, and without it, doctoral students frequently find themselves unable to continue their work. Students motivated by their interest in a topic are less likely to procrastinate (Ahern and Manathunga 2004; Schapiro and Livingston 2000), increasing the likelihood of success in the program. A lack of motivation is one of the primary reasons that doctoral students leave their programs (Sverdlik et al. 2018).

IS research and the IS curriculum centers on the development and management of technological solutions to organizational problems (Gorgone et al. 2003; Topi et al. 2010). Even when seen as a sociotechnical axis (Sarker et al. 2019), IS is firmly grounded in the technological solution space. Courses in systems analysis and design, data management, and IT infrastructure require some level of technical sophistication; even more so in cases where the student can be expected to perform teaching-related activities. Because an IS doctoral program does not typically include coursework in technical fundamentals, applicants are expected to have a foundational understanding before arriving in the program. Without a solid foundation in the use and development of technology, a graduate student is likely to struggle to contribute in an IS department. Therefore, we include a manifested interest in technology as a component of the rubric for an IS doctoral program.

Table 3: Indicators of Technical Interest and Competency in an Application Portfolio (1= Lowest Weight; 5= Highest Weight)

1	2	3	4	5
No evidence of technical interest, and/or no or poor academic performance in relevant classes.	Minimal previous coursework in relevant fields, and no other indicators of technical interest (i.e., microcredentials); Candidate has little to no demonstrated experience with IT artifacts. Technical major GPA < 3.0 or equivalent Verbal and Quantitative (V&Q)	Undergraduate degree in relevant field, or some portfolio indicating programming or other technical background; Candidate has demonstrated some experience with IT artifacts. Technical major GPA < 3.8 or equivalent Verbal and Quantitative (V&Q) Standardized	Undergraduate or graduate degree in relevant field, or work experience with portfolio indicating programming or other technical background; Candidate has demonstrated working proficiency with IT artifacts. Technical major GPA >= 3.8 or equivalent Verbal and	Demonstrated excellence in technical or analytical work; Candidate has demonstrated strong background with IT artifacts. Verbal and Quantitative (V&Q) Standardized tests >= 90th percentile

	Standardized tests < 50th percentile	tests < 70th percentile	Quantitative (V&Q) Standardized tests < 90th percentile	
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INDEPENDENCE AND INITIATIVE

- Has the applicant demonstrated the ability to work independently?
- Has the applicant demonstrated a drive to go beyond course/work requirements?

Working toward a doctoral degree is, in many ways, a solitary endeavor. Even when working in a collaborative environment, students will need to identify their own research problems and carve out an individual identity for themselves as independent researchers. The Association of American Colleges and University (AAC&U) has identified initiative and independence as two key desirable learning outcomes for lifelong learning (AACU 2003).

Independence focuses on the student’s interest and abilities in pursuing learning and excellence beyond classroom requirements. This independence is different from the skills measured by quantitative factors such as the undergraduate grade history and standardized test scores. As a doctoral degree requires the capacity to make independent research contributions, being a good student who does well at clearly defined work is not sufficient (Lovitts 2005, 2008). Students who excel at making the transition to independent research contributions show what Lovitts (2008) describes as practical intelligence, or the ability to think, work, and make decisions on their own. This attribute is also associated with a willingness to try things, play around, and learn on their own (Beard 2019). Johansson, Benediktsson, and Husted (2014, p. 2) point out that often the research to be performed has to be adapted to the student and not the other way around, thus having a sense of the applicants’ independence may be more useful than having an understanding of how they performed in previous unrelated scenarios.

Initiative shows itself in a willingness to be proactive and self-motivated in identifying and solving problems (Lovitts 2008). Where independence is an ability to figure things out without direction, initiative is a pursuit of something beyond the requirements. A student who shows initiative will seek opportunities to learn and expand their knowledge and skills beyond what is strictly required. A student lacking in initiative may be an excellent student in the sense that they complete all required work, but they do not identify and pursue opportunities to excel.

Independence and initiative are closely related, and some of the same activities serve to demonstrate both attributes at the same time. Participation in extracurricular activities, including non-academic activities like sports, demonstrates a desire to excel and a drive to continue despite obstacles. Leadership roles demonstrate independence. Seeking learning outside the classroom, including microcredentials or certificates demonstrates a drive to learn and a willingness to do more than what is asked. Digital portfolios can be useful in the assessment of initiative and independence as well; a recent meta-analysis finds that work portfolios are predictive of task-level training success as well as predictive of performance for those who are in their first professional positions, whereas the majority of traditional hiring materials have no correlations with performance and turnover (Van Iddekinge et al. 2019).

Independence and initiative can be demonstrated by applicants to doctoral programs through letters of recommendation, the personal statement, and the writing sample. To encourage applicants to highlight these attributes, it can be helpful to highlight them in the application instructions (Michel et al. 2019).

Table 4: Indicators of Independence and Initiative in an Application Portfolio (1= Lowest Weight; 5= Highest Weight)

1	2	3	4	5
Applicant	Applicant is a	Applicant is a	Applicant	Applicant

<p>demonstrates no additional activities or extensions of coursework.</p> <p>Student does not demonstrate curiosity or interest in the specific program.</p>	<p>participant in extracurricular activities, with no clear role or demonstrates interest but not activity in extending coursework.</p> <p>Student responds to interview questions but struggles to pose questions.</p> <p>Student does not have a response for goals of attaining PhD in the specific program.</p>	<p>participant in extracurricular activities with a clear role or goal; demonstrates applications of new directions for learning or practice.</p> <p>Student has a non-tailored set of questions for interviewers prepared; student questions are mainly about administration rather than research specific.</p> <p>Student has prepared response for their interest in completing a PhD but not the PhD in the specific program.</p>	<p>demonstrates leadership in activities, with specific contributions; can identify and demonstrate pursuit of educational interests beyond coursework.</p> <p>Student has a tailored set of questions for interviewers prepared; student questions are about administration as well as research specific.</p> <p>Student response about their interest in completing a PhD has application to their goals but little detail about program fit.</p>	<p>instantiated new activities or organizations to serve multiple goals; has demonstrated skill acquisition outside of formal learning opportunities.</p> <p>Student has detailed questions about faculty and/or departmental research or prior contact with faculty member about their ongoing research.</p> <p>Student has clear and compelling response for interest in completing doctoral work in the specific program.</p>
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THE LESLIE FACTOR

- Will the applicant be able to effectively participate and collaborate in this research environment?

The final factor in the rubric focuses on the less predictable factors that affect the working relationship between a doctoral student and faculty advisors, staff advisors, and other students. Research potential, writing skills, technical interest, and independence and initiative are important for evaluating an applicant’s potential to succeed as a doctoral student and later as faculty; however, a doctoral degree is not entirely a solo endeavor. Students will need to work inside an often-collaborative research environment. To be effective, students will require a productive working relationship with their supervisory committee as well as strategic partnerships with other students, faculty, and staff across the department (Corsini et al. 2022; Grover 2001, 2007). An examination of the 2021 & 2022 issues of MISQ and ISR show only 5 out of 217 papers (2.3%) were published with solo authorship. Thus, we can interpret the ability to work well with others is a crucial skill for research success. On the other hand, students who do not have appropriate departmental fit, or cannot match the expectations of excellence in the department may suffer distress leading to disappointing outcomes like dropping out of the program, failing their candidacy examinations, or mental health issues (Nature 2019). Perkins and Lowenthal (2014) and Lovitts (2005) detail extreme manifestations of when this matching process goes wrong.

We have termed this rubric category *Less Explainable Soft Lines for Interpersonal Excellence*, or the LESLIE Factor, to honor a specific excellent staff graduate student advisor, along with the many advisors who are the daily first point of contact for doctoral students. While many

interpersonal issues may not be identifiable prior to admission to the program, this category is a reminder to look for red flags that indicate an applicant may be one to cause issues for others they work with on a personal level. The primary evaluation material for the LESLIE Factor is the applicant interview. During the initial evaluation of whether to interview an applicant, some signals might be available in the letters of recommendation, personal statement, or in extramural activities including leadership roles as noted above. The rubric below addresses both the initial evaluation and the interview.

Table 5: Indicators for the LESLIE Factor in an Application Portfolio (1= Lowest Weight; 5= Highest Weight)

1	2	3	4	5
<p>No Letters of Recommendation.</p> <p>Letters explicitly refer to trouble working with others in the past.</p> <p>In interview, applicant is off-putting, rude, or overly negative.</p>	<p>Letters make no mention of collaboration, group work, or personality.</p> <p>In interview, applicant has no examples of positive collaborations.</p>	<p>Letters mention collaboration but give no specific detail.</p> <p>In interview, applicant refers in vague terms to positive collaboration experiences.</p>	<p>Letters mention positive collaborative experiences or being a pleasure to work with.</p> <p>In interview, applicant refers to specific instances of positive collaboration.</p>	<p>Letters explicitly, specifically, and effusively point out positive collaborative experiences.</p> <p>In interview, applicant articulates specific collaboration techniques for use in a research-oriented team.</p>

IV. DISCUSSION

In their article on last-mile research, Nunamaker et al., (2015) posit that a facet of proof-of-value research is “To develop and document the processes by which, and the conditions under which, a solution can be used to create value”; a related requirement for Proof-of-value Research is “To understand better the technical, economic, and operational feasibility factors that might affect successful deployment of such a solution in the workplace (p. 21).” In the same vein, we propose utilizing readiness as a guideline concept behind the process of doctoral admissions and operationalize the conditions of readiness for an IS doctoral research program. We propose readiness as opposed to other guideline concepts to improve and increase the level of functional quality of junior researchers in the IS domain. Readiness is the demonstration of the skills and behaviors that indicate the applicant is ready to undertake IS research. This includes capitalizing on previous opportunities for research, fluency in the language and writing culture of the individual program, clear commitment to the technical principles of IS research, independence, initiative, and an appropriate concept of fit for the program.

Program department cultures vary, and the use of metrics should be able to grow and contract to fill the need, while maintaining some aspects of standardization. Table 6 demonstrates how the proposed elements of the readiness rubric aligns with commonly requested application materials. Considering the metrics and their proposed corresponding rubric scales, it is possible to assess candidates with fixed scores. While cutoff values are left for discussion at the individual research institution, the proposed criteria could be assessed as demonstrated as a holistic assessment. We also note that institution-specific weights could be added to the individual metrics to tailor the rubric while maintaining consistency for applicant evaluation.

Table 6: Mapping of Rubric Categories to Typical Admissions Materials

Admission material	Rubric categories				
	Research potential	Writing fluency	Technical interest	Independence and initiative	LESLIE Factor
Letters of recommendation	x			x	x
Verbal/Writing standardized test scores and/or Language proficiency scores		x			
Quantitative/Math GRE/GMAT score			x		
Transcripts			x		
Writing sample	x	x		x	
Personal statement	x	x	x	x	
Resume/CV	x			x	
Interview	x		x	x	x
Optional or less common: Digital portfolio	x		x	x	
Microcredentials	x		x	x	
Certifications	x		x	x	

Disambiguating research readiness from demonstrations of prior performance or qualitative factors like fit or gut feelings supports recruiting and integrating the strongest graduate student talent. Using the readiness concept for graduate admissions not only moves IS into a conceptual area well-established by educational theorists, but it also allows for a clearer view of what is viewed as potential for success of future researchers. In a time where successful completion of a dissertation is almost a coin toss due to high dropout rates and a burgeoning mental health crisis, admitting students based on their readiness for research success should both support faculty by focusing resources on those most able to utilize them, but also clearly communicates expected requirements to potential applicants.

Using a unified metric for admissions based on readiness is a step forward for the IS field in establishing expectations of junior researchers. Admissions processes can feel like a black box to student applicants; clearly communicating expectations can help demystify the process. Applicants who can demonstrate a minimum standard of readiness via their portfolio materials establish a minimum confidence level in their reviewers that research in the particular program is the correct pathway forward for them. The clarity that comes with standardized mechanisms for assessing candidates also supports efficiency for faculty decision-making.

V. LIMITATIONS

This contribution does not directly address the common pain point of diversity and inclusion in admissions (Gardner 2008; Gazley et al. 2014; Scherr et al. 2017). We acknowledge the importance while leaving this as a purposeful omission. Using admissions as a tool to increase student cohort diversity is an important topic, however there are necessary legislative and cultural issues around reducing these elements to a single rubric. We leave the scoping of this issue in IS doctoral admissions for future work. It should be noted that uniform use of rubrics is well-known to support normalization of outcomes across groups; thus, we can expect that a uniformly applied

rubric would be supportive of increasing diversity from applicant pools. Closely linked to this limitation is the inability of rubrics to eliminate subjectivity in faculty assessment. Rubrics standardize but cannot completely abolish differential weighting by admissions personnel based on personal preference. We recognize this weakness; we also recognize that this is a systematic weakness in subjective assessments.

VI. CONCLUSION

Recruiting and retaining talented junior scholars into IS doctoral programs is and will continue to be a priority of the academy. With its strategic intersection between program competitiveness and the talent pipeline, admissions practices should be at the forefront of IS professionalization discussions. However, due to significant heterogeneity of practices and an almost trade secret-like status, admissions is generally under-addressed by IS education literature and practice. This work proposes a solution based in education and IS theory and practice to support the professionalization of admissions to IS doctoral programs. As there are not generally program-wide admissions officers for graduate applicants, we position this rubric as a mechanism for IS faculty to evaluate candidate readiness for admission to their doctoral programs.

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