



## **Undergraduate GPA as a Critical Success Factor in Evaluating Professional Working Adult Learner Admissions Acceptability**

**Dr. Mitchell L Springer PMP, SPHR, Purdue University, West Lafayette**

Dr. Springer currently serves in a dual capacity as the Purdue University, College of Technology, Executive Director for College of Technology Operations and Strategic Initiatives, and, the Academic Center for Professional Studies in Technology and Applied Research (ProSTAR), located in West Lafayette, Indiana. He possesses over 30 years of theoretical and industry-based practical experience from four disciplines: Software Engineering, Systems Engineering, Program Management and Human Resources. Dr. Springer possesses a significant strength in pattern recognition, analyzing and improving organizational systems. He is internationally recognized, has authored numerous books and articles, and lectured on software development methodologies, management and organizational practices, and program management. Dr. Springer sits on many university and community boards and advisory committees. Dr. Springer received his Bachelor of Science in Computer Science from Purdue University, his MBA and Doctorate in Adult and Community Education with a Cognate in Executive Development from Ball State University. He is certified as both a Project Management Professional (PMP) and a Senior Professional in Human Resources (SPHR).

**Mr. Mark T Schuver, Purdue University, West Lafayette**

Mark Schuver is the Associate Director for the Center for Professional Studies in Technology and Applied Research (ProSTAR) in the College of Technology at Purdue University in West Lafayette, Indiana. He is responsible for the development and administration of the Weekend Master's Degree Programs, the Rolls-Royce Master's Degree Programs and the growth of Professional Education Programs in the College of Technology. Prior to joining Purdue in 2002, Mark was employed by Caterpillar, Inc for 35 years with assignments in Product Design, Research and Development, Supplier Management, Quality Management, Logistics Management and various leadership positions. He holds an Associate Degree in Drafting Technology from North Iowa Area Community College (1967), a BS in Business Administration (1990) and MS in Management (1992) from Indiana Wesleyan University.

Mark is a member of the American Society for Engineering Education and serves on the Executive Board of the Continuing Professional Development Division. He is also a member of College/Industry Partnerships, Engineering Technology and Graduate Studies Divisions of ASEE. Mark is a member of the National Collaborative Task Force for Engineering Education Reform and is a Lifetime Certified Purchasing Manager with the Institute of Supply Management (formerly NAPM).

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Most colleges and universities, especially Tier 1 research universities, frequently use undergraduate Grade Point Average (GPA) and the Graduate Record Examinations (GRE) as key criteria for acceptance of students into Masters' level education programs. While GPA and GRE are relevant as critical success factors relative to traditional students, the applicability of these criteria alone becomes skewed when considering potential applicants who are working professional adult learners. Working professional adult learners have additional criteria that may more accurately predict their educational success than the historical undergraduate GPA or GRE. Undergraduate GPA and GRE scores, as admissions criteria, become further clouded by our desire as an academic unit to maintain high standards for admission.

Other factors contributing to working professional adult learners include, but are not limited to, years since last degree, undergraduate field of study, reasons for undergraduate GPA (if low), GPA of classes taken more recently (post-undergraduate), GPA in the first two years versus the last two years, demonstrated application of undergraduate assimilated knowledge through successfully greater career opportunities, recommendations from supervisors and third parties and the potential students statement of purpose. In the final analysis, it is a judgment decision on maturity, based on a collection of factors that support an informed decision on the potential success of an applicant. These many career oriented factors are typically not available when assessing the Master's applicant who has just completed their undergraduate degree.

This paper shares the quantitative results of a longitudinal study of nearly 400 working professional adult learners, from business and industry, who graduated from Purdue University's Center for Professional Studies in Technology and Applied Research (ProSTAR) programs. This cohort-based set of programs employs a hybrid classroom and distance-supported, innovatively-delivered graduate degree (MS) in technology.

This paper explores follow-on considerations in balancing and managing the potential for lowering an academic unit's overall admissions GPA against weighting undergraduate GPA differently for incoming working professional adult learners.

Overview –

This paper's demographics come from a longitudinal follow-up study of over 400 working adult professional learners; business and industrial professionals who graduated from Purdue University's College of Technology cohort-based distance hybrid weekend Master of Technology program as well as from the College's current 100% distance programs<sup>1,2</sup>.

On June 11, 1998, the College of Technology initiated the process for University, and subsequently Indiana Commission for Higher Education, approval of a non-traditional, fee-based weekend alternative to Purdue's traditional campus tuition-based Master of Science with a major in Technology degree. This request stated:

Technology is transforming all aspects of our life, both at home and at work. Therefore, it is important that we consider the future of those individuals completing undergraduate degree programs in technology and engineering technology. ... The demand for graduate technology education opportunities is a growing population that will continue to increase. Also, as this demand continues to grow, the need for greater flexibility in delivery will also expand. Competition for this potential customer base will encourage higher education administrators and faculty to evaluate new and innovative delivery systems to serve the educational needs of these customers. ... This is not a new degree program, just a different delivery approach to an existing one. Technology and engineering technology programs continue to change and evolve in striving to meet society's technological expectations and needs. It is imperative that graduate education be considered as an important element. A survey study conducted at Purdue University reported that 92% of the alumni and faculty indicated that graduate education in technology is important for the professional development of individuals working in industry and that there exist a perceived demand for graduate education in technology and engineering technology<sup>3</sup>.

In the fall of 1998, the College of Technology's Department of Industrial Technology took a lead role in implementing, pursuant to authorization, the first week-end Master in Technology program on the campus of Purdue University in West Lafayette, Indiana. The original offering was cohort-based and as mentioned employed a weekend format; meeting from Friday through Sunday. The cohort met three times a semester, twice in the summer semester, for a total of five semesters (Fall, Spring, Summer, Fall and Spring). After 22 months all members of the initial cohort format graduated in the May 2000 graduation ceremony. Because of its non-traditional approach, the state's authorization included the establishing of a different fee structure than normal classes which resulted in a cost that was higher than conventional campus-based instruction. This began the differentiation between program offerings.

Subsequently, on October 13, 2000, the Indiana Commission on Higher Education (ICHE) approved the university request for delivering a hybrid distance-based alternative to traditional classroom-only programs. The entire process from conceptualization to full final approval took two years and four months<sup>4</sup>.

The data of this paper is comprehensive and rich in description. The data, in part, has been used for previous attendant tangential studies providing baselines for peer and aspirational future research<sup>5,2</sup>.

#### Methodology –

Most colleges and universities, especially Tier 1 research universities, frequently use undergraduate Grade Point Average (GPA) and the Graduate Record Examinations (GRE) as key criteria for acceptance of students into Masters' level education programs. While GPA and GRE are relevant as critical success factors relative to traditional students, the applicability of these criteria alone becomes skewed when considering potential applicants who are working professional adult learners. Working professional adult learners have additional criteria that may more accurately predict their educational success than the historical undergraduate GPA or GRE. Undergraduate GPA and GRE scores, as admissions criteria, become further clouded by our desire as an academic unit to maintain high standards for admission.

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Critical to determining undergraduate GPA impact on graduation rates or more specifically graduate GPA, is the definition of success in targeted programs. While statistical significance is certainly applicable and appropriate, it is perhaps more appropriate to examine practical significance; that being "...it is possible that, based on the available sample data, methods of statistics can be used to reach a conclusion that some treatment or finding is effective, but common sense might suggest that the treatment or finding does not make enough of a difference to justify its use or to be practical<sup>6</sup>..."

To this end, current graduate school requirements as well as those of the College of Technology require a minimum of a 3.0 graduating GPA to receive a degree. Through careful qualitative analysis and discussion, it was determined the average recorded GPA of the lowest entry undergraduate GPAs, minus the average recorded GPA of the highest entry undergraduate GPAs would be a consideration in the findings of the practical analysis. If this graduate GPA difference was more than .5, then practically speaking there was enough of a differential to merit further discussion and potentially subsequent undergraduate GPA consideration for entry into the program.

Additionally, numerous of the adult professional learners were engaged in an industry focused applied research and development project called simply the Directed Project.

The Directed Project is a project agreed upon between the student, student's company and the faculty advisor. The project is intended to parallel the thesis format and employs applied research and development methodologies to generate a project with potential for significant return on investment to the student's company. Frequently, a member of the student's company serves on the student's graduate committee – but precautions are taken to avoid conflict of interest. The Directed Project results in a document which is essentially equivalent in size and standard to the conventional theses. The university and program faculty implement procedures to guard the confidentiality of the project information where necessary.

As a percent of the entire population of this analysis and study, the cumulative value of the Directed Projects were taken into consideration.

Findings –

There are 27 total programs that form the basis of this study. For each program cohort, the average undergraduate GPA, MS graduating GPA, chronological age on entry into the program, and years of work experience are depicted in figure 1.0 below. From figure 1.0, the:

- ❑ Average graduate GPA is 3.79
- ❑ Average undergraduate GPA is 3.19
- ❑ Average age is 35.85
- ❑ Average years of work experience is 14.85

Figure 2.0 simply graphs the above data to better visually reveal parallel movements between entry undergraduate average GPA and graduating average GPA by cohort.

Additionally, figure 3.0 depicts:

- ❑ 37%, 178 of the 481 graduating program working adult professional learners have an undergraduate entry GPA less than the required 3.0.
- ❑ Of those 37% of the adult working professional learners who graduate from the program, their cumulative Directed Project return on investments totaled over \$17M.

Relative to those potentially entering with less than the required undergraduate GPA of 3.0, there are two influencing factors. First, the standards of the university and the College of Technology require increasingly greater undergraduate entry GPAs, this to accomplish many objectives. Working adult professional learners entering with less than this desired target undergraduate GPA actually create a negative drag on the overall university and applicable college. Second, and to the first topic, those entering with less than the university and college required 3.0 GPA

are accepted conditionally. From the university and college handbooks, those conditions are summarized as

*“... For those students admitted who do not meet unconditional admission criteria to the master’s degree program (e.g., 3.00/4.00 or better average in prior study), certain other performance elements may be considered. For example, substantial career accomplishment as evidenced by the resume or high performance on the Graduate Record Examination may indicate that student potential for success is not adequately reflected in their prior academic record.*

*In particular, faculty reviewers of graduate applicants note the level of communication (oral and written) proficiency documented by the applicant and in cases where performance is below expectations, e.g., as demonstrated by a low GRE Verbal score, faculty may consider establishing English development experiences in addition to the program’s normal requirements.*

*Conditional admission requires that certain minimum performance standards be established, such as "must achieve at least a 3.00/4.00 graduate index at the completion of the first 12 credits following admission to the master’s degree program." In addition, admission committees may require certain undergraduate prerequisite coursework to satisfy a deficiency in the student’s background<sup>7</sup>...”*

In comparing the average graduating GPA to the average entering undergraduate GPA, of the program adult professional learners, the difference is .05, well below the .5 determined to be of practical significance. To this end, although the entering undergraduate average GPA of those entering with less than the required 3.0 is 2.65, there does not appear to be a practical significance, as collectively agreed to, in their average graduating GPA.

Equally important, and perhaps most leveling, is the return on investment, as determined by a third party, of the students’ Directed Projects on the well-being of the State and their respective employers. A third party verified ROI in excess of \$17M is financially significant and a testament to the maturity and professionalism of those adult working professionals who entered the program with undergraduate GPAs less than the required 3.0<sup>8</sup>. In a sample of those students who completed a Directed Project contributing to the cumulative \$17M ROI, 40% had less than the required 3.0 undergraduate GPA on entry into the graduate program. Of those with less than the required 3.0 undergraduate GPA only .02% did not complete the program; stated differently, 99.98% did graduate from the program.

Cohort	Graduating GPA	Ugrad GPA	Age in MS Prog	Yrs of Work Exp.
1	3.82	3.25	36.06	15.06
2	3.80	3.20	34.33	13.33
3	3.79	3.24	35.43	14.43
4	3.76	3.00	33.00	12.00
5	3.80	3.19	34.33	13.33
6	3.80	3.21	36.31	15.31
7	3.79	3.24	35.69	14.69
8	3.80	3.21	35.00	14.00
9	3.79	3.24	35.69	14.69
10	3.79	3.11	36.00	15.00
11	3.79	3.18	35.09	14.09
12	3.79	3.23	35.69	14.69
13	3.76	3.19	38.00	17.00
14	3.79	3.20	35.93	14.93
15	3.79	3.19	36.07	15.07
16	3.79	3.19	36.07	15.07
17	3.79	3.20	35.96	14.96
18	3.79	3.20	36.12	15.12
19	3.79	3.19	35.65	14.65
20	3.79	3.19	35.58	14.58
21	3.79	3.21	36.83	15.83
22	3.79	3.16	34.71	13.71
23	3.77	3.19	38.00	17.00
24	3.79	3.19	35.70	14.70
25	3.78	3.14	38.75	17.75
26	3.79	3.19	35.83	14.83
27	3.79	3.18	36.23	15.23

Figure 1.0 – Program Cohort Demographics

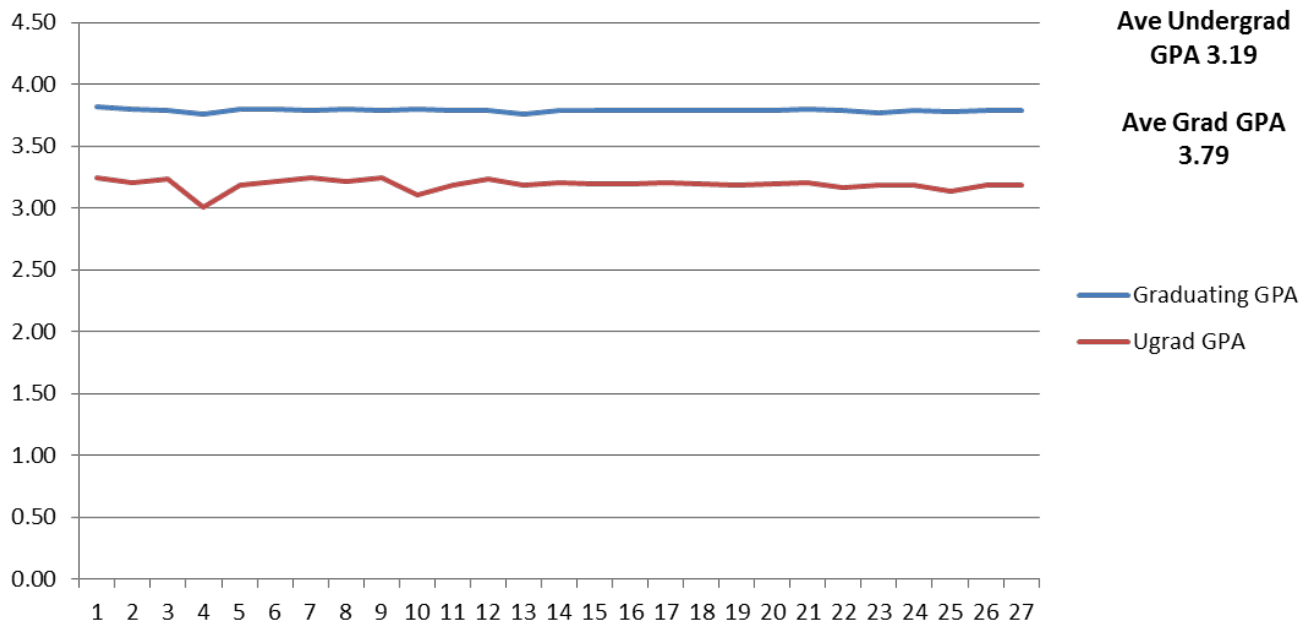


Figure 2.0 – Average Undergraduate GPA versus Graduating GPA

Number of Students (cumulative)	% of Total Students	Undergrad GPA Ave	Grad GPA Ave	DP (verified 3rd Party) Est Savings
178	37%	2.65 (<3.0)	3.74	\$17,100,000.00
481	100%	3.19	3.79	N/A

Figure 3.0 – Average Undergraduate to Graduate GPA, and Directed Project Savings

#### Conclusions –

In response to the original suggestion of this paper, the above findings would support practical significant findings that:

- ❑ Undergraduate GPA of entering working adult professional learners has no practical significance to their respective graduating GPA.
- ❑ Those working adult professionals who participate in the design, development and subsequent third party validation of a Directed Project, generate roughly \$17M in return on investment to the State and to their respective business/industry organizations.

From these conclusions, it can be stated that other than entering undergraduate GPA, other factors may, and do, play a role in adult professional learner success. Student ability to provide thoughtful and insightful solutions to their business/industry seems to demonstrate a level of professional maturity; personally, professionally and specifically to their individual disciplines.

Worth noting, relative to lower than desired undergraduate entering GPAs, are other academic considerations, such as lowering overall university and college entering GPAs, which is a cause for conversation, and certainly a topic from numerous perspectives.

#### Areas for future research –

From the findings and subsequent conclusions, there are a number of additional questions that should be studied for greater understanding; namely:

- ❑ If there existed an agreed to lower GPA entry requirement, floored above the lowest tier of entering students, what would be the overall impact to businesses/industries wishing to send potential students to the many programs?
- ❑ Would limiting student enrollment to fewer than currently accepted, based on a new lower and agreed to floor (per the above), create a survival imperative for the MS program administering organization or the hosting college?
- ❑ Would allowing only those students who meet the university and college entry undergraduate GPA, create a renewed perceptual strengthening of the program, such that increased enrollments or considerably differentiated fees may justifiably materialize?



- Potential participants to a given graduate fee-based ProSTAR administered program are interviewed and their credentials reviewed before being admitted. Factors considered during these reviews and interviews include: work experience with respect to increasingly greater levels of responsibility, letters of reference (including their supervisor's input), the student's goal statement, and, their resume. Given all of these other factors, further research would provide insight into those common factors that suggest a greater likelihood of graduation success.

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