

2020-12-01

Doctor of Physical Therapy Student Grit as a Predictor of Academic Success: A Pilot Study

Rebecca Bliss

Department of Physical Therapy, University of Missouri, USA

Erin Jacobson

Department of Physical Therapy, Wingate University, USA

Follow this and additional works at: <https://hpe.researchcommons.org/journal>

Recommended Citation

Bliss, Rebecca and Jacobson, Erin (2020) "Doctor of Physical Therapy Student Grit as a Predictor of Academic Success: A Pilot Study," *Health Professions Education*: Vol. 6: Iss. 4, Article 19.

DOI: 10.1016/j.hpe.2020.06.006

Available at: <https://hpe.researchcommons.org/journal/vol6/iss4/19>

This Original Research Reports is brought to you for free and open access by Health Professions Education. It has been accepted for inclusion in Health Professions Education by an authorized editor of Health Professions Education.

Doctor of Physical Therapy Student Grit as a Predictor of Academic Success: A Pilot Study

Rebecca Bliss ^{a,*}, Erin Jacobson ^b

^a Department of Physical Therapy, University of Missouri, USA

^b Department of Physical Therapy, Wingate University, USA

Received 1 March 2020; revised 10 June 2020; accepted 15 June 2020

Available online 22 July 2020

Abstract

Purpose: Grit and resilience are considered non-cognitive traits associated with motivation, attitude and temperament rather than intellect and have been increasingly recognized as important skills to identify and develop in medical professionals. The purpose of this study was to investigate grit scores as well as the relationship of grit and other factors to academic success in Doctor of Physical Therapy (DPT) Students.

Method: Forty-four 2nd year DPT students from the US, were surveyed utilizing the 12-Item Grit Scale prior to the start of semester 4, composed of an 8-week didactic module followed by an 8-week clinical internship. Cognitive traits including Pre-admission Grade Point Average, Graduate Readiness Exam scores, age, as well as descriptive statistics were extracted from admission data. Cumulative GPA and semester GPA from the 8-week didactic portion of the semester were gathered post semester completion.

Results: The mean grit score for 2nd year DPT students was 3.74 (SD \pm .48). Moderate correlation between grit score and cumulative GPA, $r = .501$, $P = .001$ was found. A multiple regression analysis found grit score and age as predictors of cumulative GPA, explaining 41.4% of the variance.

Discussion: Among 2nd year DPT students at a teaching and learning institution in the southeast United States, grit and age appear to be associated with DPT program cumulative GPA scores. Non-cognitive factors such as grit and age may assist in predicting academic success among entry-level DPT students. Grit has not been examined previously as a non-cognitive trait contributing to academic success among entry-level DPT students but may serve as a helpful addition for admission profile to assist in predicting academic success.

© 2020 King Saud bin Abdulaziz University for Health Sciences. Production and Hosting by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Keywords: Academic success; Grit; Physical therapy student

1. Introduction

The ever-changing health care system in the United States has become more environmentally complex and the demands on future healthcare professionals unique. Non-cognitive qualities associated with leaders in the

* Corresponding author. 801 Clark Hall, Columbia, MO, 65211, USA.

E-mail address: rebecca.bliss@health.missouri.edu (R. Bliss).

Peer review under responsibility of AMEEMR: the Association for Medical Education in the Eastern Mediterranean Region

field have become a recent topic of interest among allied health educators.¹ Examination into these qualities that may parallel cognitive success are currently being investigated as part of holistic admission processes.¹ Health profession educational programs to include pharmacy, medicine, and occupational therapy have explored student non-cognitive traits and their relationships to academic and clinical performance, but little is known specific to physical therapy students.² In a recent Carnegie-modeled qualitative study aimed at defining excellence and innovation in physical therapy education, a call to reform has been made to increase focus on the creation of adaptive, independent learners that are equipped to succeed in the ever changing complex health care system.³ Current complexity in the healthcare environment has led to employers placing increased attention on metacognitive abilities such as insight, self-awareness, adaptability, as well as what some consider “soft skills,” such as emotional intelligence, resilience, and communicative ability. Despite the importance of these identified non-cognitive traits there is a lack of objective measurement in professional programs to include physical therapy education.⁴ Non-cognitive assessments have recently shown great value in workforce development and it has been postulated that these skills are more valuable to employers and can be used to predict overall job performance.⁵ Little is known in regards to how these specific non-cognitive traits factor into measures of academic success and affective domain qualities among physical therapy students.

A non-cognitive trait that has recently gained attention not only in the workforce, but also among higher education is the construct of grit. It has been described by Duckworth and colleagues as the ability to persevere through difficulties to meet long-term goals.^{6–8} Grit’s characteristics have also been defined as the level of passion and resilience to deal with hardships along the path to long range goals.⁹ One could postulate that physical therapy students not only require grit, but may possess this personality trait secondary to the decision to pursue the doctorate degree. Grit consists of two constructs; consistency of interest and perseverance of effort, and has been associated with predictors of greater academic adjustment, college grade point average, college satisfaction, sense of belonging, faculty–student interactions, and intent to persist in the same area of study.¹⁰ Grit and resiliency traits have also shown a positive relationship

to motivation, attitude and temperament and have been increasingly recognized as important skills to identify and develop in medical professionals.¹¹

In a recent Delphi-study of leaders in physical therapy educational programs, grit has been identified as a non-cognitive trait shown to be associated with positive future professional success.¹² Grit has been defined as a non-cognitive trait secondary to its contribution to an individual’s personality characteristic and has not been explicitly measured in the admissions process in physical therapy education.^{9,11} If a program includes an in-person interview and or has an essay requirement as part of the admissions process, grit has the potential to be implicitly measured, though evidence of this is lacking. Previous research investigating predictors of academic success of physical therapy students have been focused solely on cognitive domains such as undergraduate and graduate grade point averages as well as standardized test scores, which explains its current role in admission’s profiles.¹³ Recent evidence has suggested increasing the weight of admissions interview scores in the admissions process, as they have also shown contribution to predicting academic success.¹⁴ This has the potential to inherently identify non-cognitive constructs that have been identified as important to future clinical practice.^{15,16}

A recent shift in physical therapy education has placed greater value on the exploration and development of non-cognitive traits in development of adaptive expertise. This is evidenced by the effort to disseminate criteria associated with excellence in physical therapy education by the American Council of Academic Physical Therapy (ACAPT).¹⁷ Creating adaptive learners that possess qualities associated with success in today’s complex healthcare environment and the importance of professional formation are both outlined as two of the four elements of the praxis, or practice, of learning.^{3,18} Specific attention is devoted to the development and fostering of these non-cognitive traits, placing an emphasis on the affective domain and its contribution to professional formation, though specific attributes have not been largely studied among DPT students.^{17,19}

The development of non-cognitive traits and characteristics, are essential to produce adaptive learners and encourage professional growth.¹⁸ Non-cognitive traits have been recently studied in other health profession’s education to include the construct of grit, and

was shown to be a contributor to both academic success and professionalism, as well as a predictor of future leadership roles.^{6,20–22} The majority of the traits associated with positive professional performance as identified by the recent Delphi study in physical therapy are associated with non-cognitive attributes, though research specific to physical therapy students is scarce. Several studies have noted that constructs specific to emotional or social intelligence positively influence academic success and result in positive performance within professional realms.^{11,12,23,24} It has also been demonstrated that higher levels of emotional intelligence and grit have been associated with personal and academic well-being, as well as life satisfaction among pharmacy and occupational therapy students.^{12,20,24}

Grit has also been examined among leaders in the profession of physical therapy, demonstrating high levels of grit ($3.9 \pm .47$).²⁵ Authors from this study have suggested that grit may possibly be used as a predictor during the admissions process to identify future leaders of the profession, though Duckworth herself cautions utilizing this construct independently in that manner.^{8,25} Current contemporary metrics utilized in the physical therapy program admissions process largely focus on cognitive traits, including grade point average (GPA) and graduate readiness exam (GRE) scores; however, a tool to objectively evaluate non-cognitive traits in physical therapy school applicants, including grit, has begun to be explored.^{1,22,23} Utilization of such a tool supports a holistic approach to admissions with the goal of identifying the full potential of the applicant, adding to the diversity of talent in physical therapy programs.^{1,25} Non-cognitive traits have the potential to predict and potentially influence academic success and professional performance within the context of the ever-changing healthcare system and warrant exploration among physical therapy students.^{26,27} To our knowledge there is little evidence exploring the relationship of the non-cognitive trait of grit to academic performance.

The purposes of this study were; 1. investigate levels of grit among current doctor of physical therapy (DPT) students, 2. explore the relationship of grit and other factors such as age, admissions data, and academic success, and 3. Identify cognitive and non-cognitive factors that may predict academic success. Our hypothesis was that student physical therapists

will possess high levels of grit and grit will show a positive relationship and contribute to academic success.

2. Methods

2.1. Overview

Standard admission profiles in physical therapy education consist of cognitive measures including undergraduate grade point averages (GPA), undergraduate science GPA, and standardized test scores specifically Graduate Readiness Exam (GRE). Current admissions processes at the current institution did not include in-person interviews and only cognitive measures. This prospective cohort study consisted of exploration of the non-cognitive trait of grit, cognitive admissions data, and academic performance of 2nd year students in the entry-level Doctor of Physical Therapy program at the end of semester 4 as well as cumulatively. Semester 4 was chosen secondary to previous cohorts' qualitative data stating it was a rigorous and challenging semester secondary to the shortened timeframe for delivery of content.

2.2. Participants

Participants were 44 2nd-year DPT students mean age 25 (± 2.34), 30% male gender at a small southeastern teaching and learning institution in the United States. All 44 students were enrolled in the fourth semester of a three-year professional program and were invited by the authors to participate in the study. Semester 4 of the program is unique in that it has an 8-week didactic section followed by an 8-week clinical internship. All procedures and voluntary consent were obtained prior to students taking the 12-Item Grit Scale at the beginning of the semester. The study protocol was approved by Wingate University Research Review Board (12 June 2018).

2.3. Materials and procedures

The 12-Item Grit Scale consists of 2 subscales, Perseverance of Effort (PE) and Consistency of interest (CI), each 6 questions.⁸ The scale has a 5-response Likert-like option for each item “very much like me” to “not like me at all.” Total scores are calculated as well as two domain scores, where higher scores

represent higher grittiness.⁸ The scale has demonstrated high internal consistency $\alpha = .85$ among college students.²⁷ Written permission was granted to utilize the Grit scale.

44 second year DPT students completed the 12-Item Grit Scale as part of their professional development exploration. Cognitive traits extracted from pre-admission profiles for each participant included Pre-admission Grade Point Average (GPA) and Graduate Readiness Exam (GRE) scores. Student age was also included to investigate its relationship to grit and academic success. Current cumulative DPT GPA and semester GPA from the 8-week didactic portion of the semester were gathered post semester completion. Descriptive statistics including gender and participation in collegiate athletics was also collected (See Table 1).

2.4. Statistical analysis

SPSS Statistical Software, Version 24 was used to perform statistical analysis. Tests of normalcy confirmed parametric data in our sample population. Bivariate correlations were examined between the non-cognitive construct of Grit, age, and cognitive variables utilizing Pearson correlation that examined strengths of relationships. Variables with significant correlations to the dependent variable were then inserted into a Multiple Regression model using a stepwise approach to determine the most robust predictive model of academic success, as measured by cumulative GPA, among the sample.

3. Results

Descriptive statistics are shown in Table 1. The mean grit score for 2nd year DPT students was 3.74 (SD $\pm .48$), which is consistent with other health

professional students of 3.78 as reported in literature.² Moderate correlations between grit score and cumulative GPA, $r = .501$, $P = .001$ and a negative low correlation between age and cumulative GPA, $r = -.438$, $P = .001$ were found (Figs. 1 and 2). Low correlations between Grit and pre-admission GPA, $r = .343$, $P = .039$ were also found but not for Grit and Semester 4 GPA, $r = .30$, $P = .06$. A stepwise multiple regression analysis determined that age and Grit combined were a better predictor of cumulative GPA, $R = .664$, accounting for 41.40% of variance, in our sample population, $F(2,41) = 14.50$, $P < .001$. Grit alone also showed to be predictive of cumulative GPA, $F(1,42) = 10.92$, $P = .002$ but only explained 20.60% of the variance.

4. Discussion

Previous research involving health professional students have shown mixed results utilizing the construct of grit in relationship to academic success.^{1,6,16} The creators of the Grit scale have cautioned against utilizing this non-cognitive trait as a sole basis for admission criteria into health professional educational programs, but suggested its use to identify those with passion and resilience to succeed.^{1,6,20} DPT students in this study possessed a high level of grit as defined by Duckworth, which is consistent with other health professional students.² The results of this study demonstrate not only a moderate relationship between DPT student grit and academic success, but also when combined with age, an explanation of 41.4% of the variance of cumulative GPA among the sample population. Interestingly, there was an inverse relationship between GPA and age of students, suggesting younger individuals performed better and may be related to the fact that they continued in their role as a student with no break between undergraduate and graduate studies. Based on the results that both grit and age played a factor in prediction of academic success, older students may benefit from additional resources during their graduate educational programs as they re-integrate into academic learning.

Previous predictors of success within DPT programs have been linked solely to cognitive domains such as GRE scores and cumulative GPA in determining success on the national licensing exam.¹³ While our study is an esoteric example, it poses grit as a potential construct worth exploring. The relationship of non-cognitive factors to not only academic success, but also positive post-professional roles in complex healthcare environments suggests earlier focus is

Table 1
Descriptive statistics of 2nd year Doctor of Physical Therapy Students, N = 44.

Descriptive	Mean (SD)
Age	25.0 (2.34)
Gender %	30% Male
Pre-Admission GPA	3.46 (.31)
Pre-Admission Science GPA	3.44 (.26)
GRE Score	305.57 (6.45)
Semester 4 GPA	3.63 (.25)
Cumulative DPT GPA	3.56 (.25)
Total Grit	3.74 (.48)
Perseverance of Effort	4.12 (.52)
Consistency of Interest	3.48 (.65)

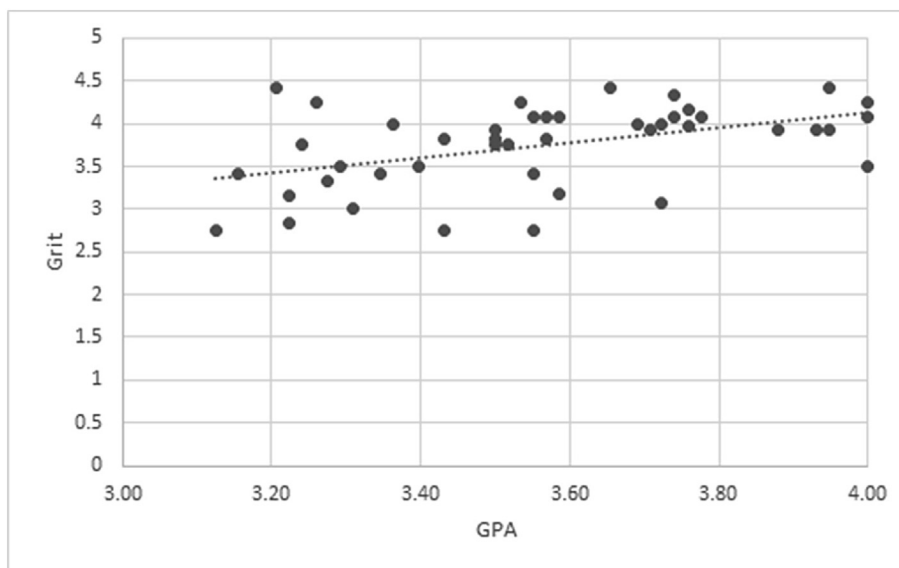


Fig. 1. Scatterplot of correlation between Grit and Cumulative DPT GPA, $r = .501$, $P = .001$.

warranted in professional education.¹² Similar findings across health professional students have shown grit to have positive associations with not only academics, but also future successes such as career satisfaction, post-professional educational experiences, as well as leadership potential.^{7,12,28}

The construct of grit has been defined as the passion and perseverance for long-term goals and it is not surprising that our results show a relationship to academic success in DPT education.²⁹ Grit's association with future career satisfaction as well as life-long

learning may explain why grittier individuals continue to succeed and experience less amount of workplace burnout.¹⁶ The world of healthcare is undergoing rapid changes in work environments, cultures, as well as reimbursement with increased incidence of burnout among medical professionals rising.^{26,30,31} Identifying individuals that are equipped with non-cognitive traits to excel in not only the rigorous academic setting, but also the complex healthcare environment is essential to the future of the physical therapy profession. Objectively measuring

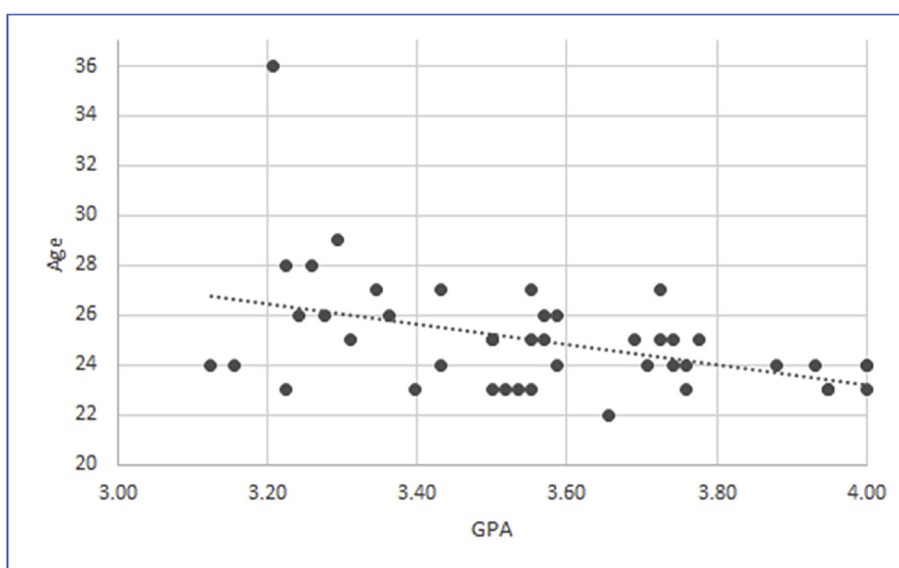


Fig. 2. Scatterplot of correlation between Age and Cumulative DPT GPA, $r = -.438$, $P = .001$.

grit in DPT students may assist in this process and help identify those needing extra assistance or those who would benefit from development of non-cognitive traits during their professional educational career. Non-cognitive traits such as grit, resilience, as well as coping ability have been associated with decreased burnout and have potential to be identified early and cultivated in educational programs.^{26,31,32}

The shift in skills required for success in future healthcare environments has led to early exploration of new holistic models as well as tools to assist in the admission process into entry-level DPT programs.¹ The goal of these models would be to capture the full breadth of experience and capabilities of applicants and identify individuals that possess qualities leading to successful outcomes.¹ Identification of non-cognitive traits may also assist in identification of prospective student's personalities, behaviors as well as characteristics required to succeed in today's complex healthcare system. Students that are able to think critically, persevere despite adversity, and show adaptability in both personal and professional interactions are well suited to survive in today's rapidly changing healthcare environment.^{26,30,33,34} Exploration of these traits in addition to cognitive measures such as the GRE and undergraduate academic performance may identify more resilient learners as well as decrease potential discrepancies during clinical educational performances.^{34,35}

Limitations of this study include a sample of convenience as well as results that cannot be applied to the general population. Future studies should include larger sample sizes as well as populations from different Carnegie level institutions to account for different admission profiles among entry-level DPT education. Longitudinal exploration is also warranted to see if the construct of grit remains stable over time among DPT students and continues to predict academic success throughout the curriculum.

To our knowledge this is the first study to explore the relationship of grit to academic success among a cohort of DPT students. While the construct of grit has been associated with the ability to maintain effort and interest in reaching goals even in the face of significant setbacks, it may also be associated with academic success needed to complete entry-level health professional programs. Recent evidence across a variety of other health professional disciplines demonstrate grit's association with drive, leadership and successful completion of post-professional educational programs.^{20,21,26,32,34} Objectively measuring non-cognitive traits as part of a holistic admissions process may assist in selecting individuals with qualities

needed to endure the rigors of physical therapy education as well as navigate and succeed in their future role as physical therapists.

Ethical approval

Ethical approval has been granted from the Wingate University's Research Review Board (12 June 2018).

Funding

None.

Other disclosure

None.

Declaration of competing interest

There are no conflicts of interest to disclose in relation to the above listed manuscript.

References

1. Roll M, Canham L, Salamh P, Covington K, Simon C, Cook C. A novel tool for evaluating non-cognitive traits of doctor of physical therapy learners in the United States. *J Educ Eval Health Prof.* 2018;15:19. <https://doi.org/10.3352/jeehp.2018.15.19>.
2. Stoffel JM, Cain J. Review of grit and resilience literature within health professions education. *Am J Pharmaceut Educ.* 2018;82(2):124–134. <https://doi.org/10.5688/ajpe6150>.
3. Jensen GM, Hack LM, Nordstrom T, Gwyer J, Mostrom E. National study of excellence and innovation in physical therapist education: Part 2—a call to reform. *Phys Ther.* 2017;97(9):875–888. <https://doi.org/10.1093/ptj/pzx062>.
4. Salazar DH, Herndon JH, Vail TP, Zuckerman JD, Gelberman RH. The academic chair: achieving success in a rapidly evolving health-care environment: AOA critical issues. *J Bone Jt Surg Am.* 2018;100(20):e133. <https://doi.org/10.2106/JBJS.17.01056>.
5. Connolly C, Gubbins C, Murphy E. Non-cognitive influences on trainee learning within the manufacturing industry. In: *IEEE transforming engineering education: creating interdisciplinary skills for complex global environments*. 2010. <https://doi.org/10.1109/TEE.2010.5508954>, 2010.
6. Palisoc AJL, Matsumoto RR, Ho J, Perry PJ, Tang TT, Ip EJ. Relationship between grit with academic performance and attainment of postgraduate training in pharmacy students. *Am J Pharmaceut Educ.* 2017;81(4):67. <https://doi.org/10.5688/ajpe81467>.
7. Hochanadel A. Fixed and growth mindset in education and how grit helps students persist in the face of adversity. *J Int Educ Res – First Quart.* 2015;11(1).
8. Duckworth AL, Quinn PD. Development and validation of the short grit scale (grit–S). *J Pers Assess.* 2009;91(912):166–174. <https://doi.org/10.1080/00223890802634290>.

9. Eskreis-Winkler L, Shulman EP, Beal SA, Duckworth AL. The grit effect: predicting retention in the military, the workplace, school and marriage. *Front Psychol*. 2014;5:36. <https://doi.org/10.3389/fpsyg.2014.00036>.
10. Bowman NA, Hill PL, Denson N, Bronkema R. Keep on truckin' or stay the course? Exploring grit dimensions as differential predictors of educational achievement. *Satisfaction Intentions*. 2015. <https://doi.org/10.1177/1948550615574300>.
11. Hammond DA. Grit: an important characteristic in learners. *Curr Pharm Teach Learn*. 2017;9(1):1–3. <https://doi.org/10.1016/j.cptl.2016.08.048>.
12. Cook C, McCallum C, Musolino G, Reiman M, Covington K. A Delphi Study: what traits are reflective of positive professional performance in physical therapy program graduates? *J Allied Health*. 2018;47(2):96–102.
13. Kume J, Reddin V, Horbacewicz J. Predictors of physical therapy academic and NPTE licensure performance. *Heal Prof Educ*. 2019;5(3):185–193. <https://doi.org/10.1016/j.hpe.2018.06.004>.
14. Roman G, Buman MP. Preadmission predictors of graduation success from a physical therapy education program in the United States. *J Educ Eval Health Prof*. 2019;16. <https://doi.org/10.3352/jeehp.2019.16.5>.
15. Seguin C. A survey of nurse leaders to explore the relationship between grit and measures of success and well-being. *J Nurs Adm*. 2019;49(3):125–131. <https://doi.org/10.1097/NNA.0000000000000725>.
16. Halliday L, Walker A, Vig S, Hines J, Brecknell J. Grit and burnout in UK doctors: a cross-sectional study across specialties and stages of training. *Postgrad Med J*. 2017;93(1101):389–394. <https://doi.org/10.1136/postgradmedj-2015-133919>.
17. American Council of academic physical therapy. *CRITERIA for excellence A definition of excellence*; 2019. https://doc-0g-7s-apps-viewer.googleusercontent.com/viewer/secure/pdf/1peb0N9bt7kdsphu5v9m6m90l752d5m7/bb93s2lseqtdh35tnh1bsrlfqbqv35f3/1581187875000/drive/05654253870956671373/ACFrOgAEt4_QC5xolMLHGJmNY45M3O4toGFB2gtPOPn54ENloqXE2hdvfG9CTkaY8HYUZSYMVh2v_rE8HxEi7rsjMfTUGJtZyi82JsvTlvm-kYmkEhWNef6TutChzrYIC3BsyFVZEK51XtayAb?print=true. Accessed February 8, 2020.
18. Cutrer WB, Miller B, Pusic MV, et al. Fostering the development of master adaptive learners: a conceptual model to guide skill acquisition in medical education. *Acad Med*. 2017;92(1):70–75. <https://doi.org/10.1097/ACM.0000000000001323>.
19. Cutrer WB, Atkinson HG, Friedman E, et al. Exploring the characteristics and context that allow Master Adaptive Learners to thrive. *Med Teach*. 2018;40(8):791–796. <https://doi.org/10.1080/0142159X.2018.1484560>.
20. Stoffel JM, Cain J. Review of grit and resilience literature within health professions education. *Am J Pharmaceut Educ*. 2018;82(2):6150. <https://doi.org/10.5688/ajpe6150>.
21. Van Veld R, Slaven EJ, Reynolds B, Shupe P, Woolery C. First-year doctor of physical therapy students demonstrate change in coping with stress. *J Phys Ther Educ*. 2018;32(2):138–144. <https://doi.org/10.1097/jte.0000000000000037>.
22. Guffey JS, Farris JW, Aldridge R, Thomas T. An evaluation of the usefulness of noncognitive variables as predictors of scores on the national physical therapy licensing examination. *J Allied Health*. 2002;31(2):78–86. <http://www.ncbi.nlm.nih.gov/pubmed/12041001>. Accessed June 3, 2018.
23. Goldie J, Dowie A, Goldie A, Cotton P, Morrison J. What makes a good clinical student and teacher? An exploratory study. *BMC Med Educ*. 2015;15:40. <https://doi.org/10.1186/s12909-015-0314-5>.
24. Singh Gill G. The nature of reflective practice and emotional intelligence in tutorial settings. *J Educ Learn*. 2014;3(1). <https://doi.org/10.5539/jel.v3n1p86>.
25. Klappa S, Fulton L, Gregg J, Tollefson A, Van Praag E, Klappa S. Physical therapist leaders: how gritty are they? *Glob J Med Phys Health Educ*. 2015;3(6):138–151. <https://www.globalscienceresearchjournals.org/gjmhpe/720422015776?view=print>. Accessed January 26, 2017.
26. Tartas M, Walkiewicz M, Majkowicz M, Budzinski W. Psychological factors determining success in a medical career: a 10-year longitudinal study. *Med Teach*. 2011;33(3):e163–e172. <https://doi.org/10.3109/0142159X.2011.544795>.
27. Brenneman AE, Goldgar C, Hills KJ, Snyder JH, VanderMeulen SP, Lane S. Noncognitive attributes in physician assistant education. *J Phys Assist Educ*. 2018;29(1):25–34. <https://doi.org/10.1097/JPA.0000000000000187>.
28. Pate AN, Payakachat N, Kristopher Harrell T, Pate KA, Caldwell DJ, Franks AM. Measurement of grit and correlation to student pharmacist academic performance. *Am J Pharmaceut Educ*. 2017. <https://doi.org/10.5688/ajpe816105>.
29. Duckworth AL, Peterson C, Matthews MD, Kelly DR. Grit: perseverance and passion for long-term goals. *J Pers Soc Psychol*. 2007;92(6):1087–1101. <https://doi.org/10.1037/0022-3514.92.6.1087>.
30. Institute for Healthcare Improvement. *Institute for healthcare improvement: the IHI triple aim*; 2017. Accessed <http://www.ihl.org/Engage/Initiatives/TripleAim/Pages/default.aspx>. Accessed December 2, 2017.
31. Carvalho VS, Guerrero E, Chambel MJ. Emotional intelligence and health students' well-being: a two-wave study with students of medicine, physiotherapy and nursing. *Nurse Educ Today*. 2018;63:35–42. <https://doi.org/10.1016/j.nedt.2018.01.010>.
32. Kreitzer MJ, Klatt M. *Educational innovations to foster resilience in the health professions*. 2017. <https://doi.org/10.1080/0142159X.2016.1248917>.
33. Erschens R, Keifenheim KE, Herrmann-Werner A, et al. Professional burnout among medical students: systematic literature review and meta-analysis. *Med Teach*. April 2018:1–12. <https://doi.org/10.1080/0142159X.2018.1457213>.
34. Valiga TM. Attending to affective domain learning: essential to prepare the kind of graduates the public needs. *J Nurs Educ*. 2014;53(5):247. <https://doi.org/10.3928/01484834-20140422-10>.
35. Cennamo L, Gardner D. Generational differences in work values, outcomes and person-organisation values fit Macky K, ed. *J Manag Psychol*. 2008;23(8):891–906. <https://doi.org/10.1108/02683940810904385>.

Rebecca Bliss is an Assistant Teaching Professor at the Department of Physical Therapy, University of Missouri, United States of America

Erin Jacobson is an Assistant Professor at the Department of Physical Therapy, Wingate University, United States of America