Academic Performance, Pre-board Examination Results and Dentistry Licensure Examination Performance of a Dental School in Laguna

Katrina Joyce T. Flores[1*]

Adventist University of the Philippines

kjtflores@aup.edu.ph

ABSTRACT

This study aims to explore the relationship between academic performance, pre-board examination results, and licensure exam performance of graduates from a dentistry school in Laguna. Specifically, it investigates whether academic and pre-board exam results predict success in the Dentistry Licensure Examination, offering insights into how effectively the school's evaluation methods align with licensure requirements. A descriptive-correlational research method was employed, targeting 49 alumni who graduated from 2014 to 2018 and passed the Dentistry Licensure Examination on their first attempt. Using purposive sampling, the study compared respondents' General Weighted Average (GWA), pre-board comprehensive and practical exam results, and Dentistry Licensure Examination performance. Statistical analysis was used to examine relationships between these variables. The study found that 57.14% of respondents achieved very good academic performance (85-89 GWA), and 42.90% had good pre-board comprehensive exam results (80-84). The majority (73.5%) had satisfactory results in the Dentistry Licensure Examination (75-79). Significant relationships were identified between academic performance and both pre-board comprehensive exam results (p = 0.014) and licensure exam performance (p = 0.000). However, no significant relationship was found between pre-board exam results and licensure exam outcomes. This study highlights the importance of academic performance as a predictor of licensure exam success. The findings can guide curriculum evaluation and improvements in dental education, ensuring alignment with regulatory standards for producing competent practitioners.

Keywords: Academic Performance, Pre-Board Examination Results, Dentistry Licensure Examination Performance

INTRODUCTION

Dental education plays a crucial role in equipping future dentists with the knowledge and skills necessary to meet community healthcare needs and remain competitive within the rapidly evolving field of dental medicine. To ensure their competence, dentistry graduates are required to pass the Dentistry Licensure Examination administered by the Philippine Regulatory Commission (PRC). This examination serves as a standard for determining whether a graduate possesses the minimum level of expertise needed to safely practice dentistry (Neumann & Macniel, 2007).

Consequently, dental schools strive to align their academic and clinical training with the PRC's expectations to ensure that graduates not only pass the licensure exam but are also adequately prepared for professional practice.

Licensure exam performance also reflects the quality of an institution's education programs. Institutions with high passing rates validate the effectiveness of their curricula, while low passing rates highlight the need for educational improvements (Ronda, 2010). In recent years, one of the dental schools in Laguna has witnessed a concerning decline in its Dentistry Licensure Examination performance, with passing rates dropping from 52.63% in 2016 to 37.84% in 2017. This trend suggests a growing disconnect between the college's internal assessments and the PRC's standards, prompting the need to evaluate the current evaluation and assessment practices used within the college.

The aim of this study is to examine the relationship between academic performance, pre-board comprehensive and practical examination results, and performance in the Dentistry Licensure Examination among graduates of a dental school in laguna. By investigating whether the college's evaluation methods serve as reliable predictors of licensure exam success, this research seeks to identify potential gaps in the current assessment system and provide insights that can guide educational reforms within the institution. The study is grounded in the Donabedian Structure-Process-Outcome model, which posits that a strong educational structure and effective processes should lead to favorable outcomes (Porter, 2010).

Through an analysis of data from graduates who took the licensure exam between 2014 and 2018, this research will explore whether academic performance and pre-board examinations can accurately predict licensure exam results. Findings from the study could help inform strategies to enhance the quality of dental education and ultimately improve licensure exam outcomes, benefiting both future graduates and the institution as a whole.

LITERATURE REVIEW

Academic Performance as a Predictor of Licensure Success
Several studies have examined the relationship between academic performance and success in dentistry licensure exams, with mixed results. Stacey and Whittaker (2005) and Koole et al. (2017) noted a moderate relationship between final grades and licensure exam performance, suggesting that understanding basic sciences, though important, is only moderately related to clinical competency. Ranney et al. (2003) also found no consistent relationship between academic performance and licensure exam outcomes, particularly in restorative exercises, though certain clinical competencies were linked to better academic performance.

In contrast, Stewart et al. (2005) found a stronger correlation between academic performance and success in the Florida dental licensure exam, with poorer academic performance leading to higher failure rates. However, Chambers (2011) observed a weak but positive correlation, emphasizing that evaluations based on multiple performances were more accurate predictors of clinical decision-making skills. Casada et al. (2001) supported this finding, indicating that class standing was a weak predictor of licensure success due to the inherent variability of human subjects in clinical exams.

Pre-board or Mock Board Examinations as a Predictor of Success

Mock board exams, widely used as preparatory tools for licensure exams, have been studied extensively as potential predictors of success. Andala et al. (2014) and Faltado (2014) both emphasized that mock exams help students identify their strengths and weaknesses, boosting preparedness for the actual exam. Stewart et al. (2006) identified mock board clinical scores as significant predictors of performance in state licensure exams, particularly in procedures like Class II amalgam preparation.

Stewart et al. (2004) found a significant relationship between four key procedures in mock board exams and Florida dental licensure exam outcomes, underscoring the importance of aligning mock board content with licensure requirements. Similarly, Dotado-Maderazo and Ercia (2017) found that written proficiency in mock board exams correlated with theoretical licensure exam success. However, Jessee (2002) provided a contrasting view, arguing that mock board exams were useful for preparing students but not directly predictive of licensure exam outcomes.

The reviewed literature presents a nuanced understanding of the predictors of success in dentistry licensure exams. Academic performance, as reflected by GPA and class ranking, appears to have a weak to moderate correlation with licensure exam outcomes, though some studies suggest that clinical competencies are more reliable indicators. Mock board exams, particularly those aligned with licensure content, show a stronger predictive value, helping students to familiarize themselves with the format and expectations of the actual exam.

Despite these findings, significant gaps remain in identifying a definitive predictor of licensure exam success. No single factor, be it academic performance or mock exam results, can consistently predict outcomes across all contexts. The inherent variability of clinical exams and the diverse competencies required in dentistry make it difficult to generalize predictors of success.

The literature on dentistry licensure examinations highlights the complex interplay between academic performance, mock board exams, and licensure exam success. While both factors offer some predictive value, neither can be considered a definitive predictor. Further research is needed to explore the role of other variables, such as clinical experience and soft skills, in licensure examination performance. This review contributes to a deeper understanding of these predictors and highlights the need for more comprehensive assessment strategies in dental education.

By addressing these gaps, future research could provide clearer insights that will inform the design of dental school curricula and licensure preparation programs.

METHODS

This research utilized the descriptive-correlational method of research. In this design, the records of the general weighted average of the students from pre-dentistry to dentistry proper, the result of their pre-board comprehensive and practical examinations and the result of the dental licensure examination were gathered to determine their relationship.

Sampling

The target population for this study consisted of graduates from a dental school in Laguna who completed their studies between April 2014 and April 2018 and passed the dental licensure exam on their first attempt. These graduates included a total of 49 alumni. The research context focused on assessing the relationship between academic performance, pre-board examination results, and licensure exam performance. The units of analysis were the individual alumni who met the inclusion criteria.

A purposive sampling technique was used to ensure that only those graduates who fit the specific requirements of the study (i.e., completing their studies within the specified timeframe and passing the licensure exam on the first attempt) were included. This method allowed for the careful selection of respondents whose profiles provided the most relevant data to address the research questions. Respondents were selected based on their available academic and examination records.

Data Collection

Data collection involved both secondary sources and records obtained directly from the administration of the college of dentistry. The academic performance (General Weighted Average or GWA), results of pre-board comprehensive and practical exams, and licensure exam scores were retrieved from official records. Additional data was sourced from books, journals, and relevant thesis studies that contributed contextual information to support the analysis.

The collection process was systematic, starting with obtaining permission from the graduates to access and use their data for research purposes. The data was then recorded and organized for analysis using tally sheets validated by experts, ensuring reliability and accuracy of the information.

Variable Measurement

The main variables measured in this study included:
- Academic Performance: Measured by the GWA, recorded in a standardized numerical grade format (e.g., 75-100), classified according to the institution's grading system.
- Pre-board Examination Performance: Comprised two components—the pre-board comprehensive exam and the practical exam. Scores were recorded numerically and categorized as either "Passed" or "Failed."
- Licensure Examination Results: The overall scores from the licensure exam were recorded in numerical form (e.g., 75-100), indicating the percentage score achieved by the graduates.

Data Analysis

Data analysis was conducted using descriptive statistics, correlation analysis, and regression models. The Statistical Package for the Social Sciences (SPSS) was utilized for all statistical computations.

RESULTS AND DISCUSSION

Table 8 shows the relationship between the respondents' academic performance based on their GWA and their pre-board examination results in the comprehensive exam. As shown, a p-

value of 0.014 was obtained which was less than 0.05 level of significance; this shows that there was a significant relationship between the respondents' academic performance based on their GWA and their pre-board comprehensive examination results.

Table 8. **Relationship between the Respondents' Academic Performance Based on their GWA and their Pre-board Examination Results in the Comprehensive Exam**

Learning Behavior	Pearson r	p-value	Interpretation
Respondents' Academic Performance based on their GWA and Comprehensive Examination Results	0.349	0.014	Significant
Significant @ 0.05			

The findings presented above support the idea that students who have better academic performance will have better results in the pre-board examinations. This means that the higher the respondents' academic performance, the higher or the better the result of their pre-board comprehensive examination. This agrees with the statement of Busch, B. (2015) in his article wherein he states that mock examinations allow students to discover their academic strengths and weaknesses, giving them an opportunity to practice revision strategies that work best for them.

This study also aimed to determine the relationship between the respondents' academic performance based on their GWA and their pre-board examination results in the practical exam. However, due to the limited variable in the data gathered from the results of the pre-board practical examination, such a relationship cannot be computed. Thus, a better evaluation of the pre-board practical results is required to further investigate the relationship between the respondents' academic performance based on their GWA and their pre-board examination results in the practical exam.

Table 9 shows the relationship between the respondents' academic performance based on their GWA and their performance in Dentistry Licensure Examination. As shown, a p-value of 0.000 was obtained which was less than 0.01 level of significance; this shows that there was a significant relationship between the respondents' academic performance based on their GWA and their performance in the Dentistry Licensure Examination. This means that the better the respondents' academic performance, the higher the result of their Dentistry Licensure Examination.

Table 9
Relationship between the Respondents' Academic Performance based on their GWA and Performance in Dentistry Licensure Examination

Learning Behavior	Pearson r	p-value	Interpretation
Respondents' Academic Performance based on their GWA and Performance in	0.531	0.000	Significant

Dentistry Licensure Examination			
Significant @ 0.01			

This finding supports the study of Stewart et al. (2005), which claims that there is a correlation between performance in dental school and performance in the Florida dental licensure exam for 1996-2003 University of Florida College of Dentistry graduates. They also observed that for the overall exam performance, failures increased as academic performance decreased. These results show that students who have good academic performance have a better grasp and understanding of the concepts involved in Dentistry, and this prepares and equips them better to take and pass the Dentistry licensure examination.

Table 10 shows the relationship between the respondents' pre-board examination result in the comprehensive exam and their performance in the Dentistry Licensure Examination. As shown, a p-value of 0.798 was obtained which was greater than 0.05 level of significance; this shows that there was no significant relationship between the respondents' comprehensive examination results and performance in the Dentistry Licensure Examination. This means that the respondents' comprehensive examination results had no bearing on their Dentistry Licensure Examination results.

Table 10
Relationship between the Respondents' Comprehensive Examination Results and Performance in Dentistry Licensure Examination

Learning Behavior	Pearson r	p-value	Interpretation
Respondents' Comprehensive Examination Results and Performance in Dentistry Licensure Examination	-0.037	0.798	Not Significant
Significance level @ 0.05			

This finding supports the study of Jessee, S.A. (2002) who tested the relationship of mock board exams administered in US and Puerto Rican dental schools to the outcome of licensure examinations. He noted that although mock board exams prepare students on what is expected of them during their respective licensure examinations and facilitate an understanding of the nuances of the upcoming qualifying examination, the outcome of the licensure examination is not affected by any aspect of the mock board examination.

These results show that the result of the pre-board examination is not a predictive factor in the success of the licensure examination. A student with low results in the pre-board examination may have higher or better results in the licensure examination, while those with better results in

the pre-board examination may have lower results in the licensure examination. These incongruences might be due to the fact that students, after taking the pre-board examination and graduating, are given more time to self-review and study in review centers which further prepare them for the licensure examination. The physical and emotional stress brought by pre-board examinations given at the time of completion of clinical requirements may also affect the mental capacity of the students at that specific period of time. Lastly, the type and format of the pre-board examination given by the college may also be contributory. To better mimic the licensure examination, the format of the pre-board examinations can be improved so as to be closer to the format of the licensure examination. This way, a more valid evaluation can be made between the pre-board examination and licensure examination.

This study also aimed to determine the relationship between the respondents' pre-board practical examination results and performance in Dentistry licensure examination. Again, due to the limited variable in the data gathered from the results of the pre-board practical examination, such a relationship cannot be computed. Thus, better evaluation of the pre-board practical results is required to further investigate the relationship between the respondents' pre-board practical examination results and performance in the Dentistry licensure examination.

CONCLUSION, IMPLICATION, SUGGESTION, AND LIMITATIONS

This study explored the relationship between academic performance, pre-board examination results, and licensure examination outcomes among graduates of a dental school in Laguna, who took the Dentistry Licensure Examination between May 2014 and May 2018. The findings indicate a significant relationship between academic performance, measured by GWA, and both pre-board comprehensive examination results and licensure exam performance. Higher GWAs were associated with better outcomes in both examinations, underscoring the predictive power of academic performance for licensure success.

Despite the significant correlations found, the study revealed no relationship between pre-board comprehensive exam results and licensure performance, suggesting that factors other than pre-board exam scores might influence success in the licensure exam. Notably, the study lacked sufficient data to analyze the relationship between pre-board practical exam results and licensure outcomes, a limitation that could have affected the comprehensiveness of the conclusions drawn.

The primary limitations of the study include the relatively small sample size and the lack of data for certain variables, particularly those related to the practical examinations. These limitations may have reduced the robustness of the findings, especially in areas where significant relationships were not detected. Additionally, the study's scope was restricted to a single institution, which may limit the generalizability of the results to other academic contexts.

Future research should address these limitations by incorporating larger and more diverse samples, as well as more comprehensive data on pre-board practical examinations. Further exploration into other potential predictors of licensure success, such as specific subject performance or alternative academic factors, would provide a more nuanced understanding of what drives success in the Dentistry Licensure Examination. Researchers may also consider investigating external factors such as study habits, teaching strategies, and institutional support systems to gain deeper insights into licensure outcomes. In conclusion, while academic

performance is a strong predictor of licensure success, this study highlights the need for more targeted interventions to enhance exam preparation, particularly in aligning pre-board examinations more closely with licensure standards.

REFERENCES

Alzahrani, M.J., Thomson, E.M., & Bouman, D.B. (2007). Predictors of Success in an Entry–Level Baccalaureate Dental Hygiene Program. *J Dent Hyg. 81*(2), 51.

Andala, H.O, Digolo, O. & Kamande, M. (2014). Reliability of Mock Examinations for Prediction of the Kenya Certificate of Secondary Examination (KCSE) Results. *Journal of Education and Practice, 5*(27), 50-58. Retrieved on November 13, 2018 from http://erepository.uonbi.ac.ke/bitstream/handle/11295/84897/Digolo_Reliability%20of%20Mock%20Examinations%20for%20Prediction%20of%20the%20Kenya.pdf?sequence=1

Arce, S.E and Belen, J.L. (2011). "The Pre-Board Examination Part of the In-House Reviews as Predictor of LET Results," *MSEUF Research Studies, 13*(1). Retrieved on November 4, 2018 from https://ejournals.ph/article.php?id=6742

Bauchmoyer, S.M., Carr, M.P., Clutter, J.E., & Hobery, P.D. (2004). Predicting Academic and National Board Dental Hygiene Examination Performance Based on Academic Factors. *J Dent Hyg., 78*(1), 39-45.

Casada, J.P., & Cailleteau, J.G., Seals, M.L. (1996). Predicting Performance on a Dental Board Licensure Examination. *J Dent Educ, 60*(9), 775-7.

Chambers, D.W. (2011). Board-To-Board Consistency in Initial Licensure Examinations. *J Dent Educ, 75*(10), 1310–5.

Dadian, T., Guerink, K., Olney, C., & Littlefield, J. (2002) The Effectiveness of a Mock Board Experience in Coaching Students for the Dental Hygiene National Board Examination. *J Dent Educ, 66*(5), 643-648

Darrel, H. (2008). RCM Mock Examiner-14th Dec 2008, 929 Granville St. Van-Couver BC.

Donabedian, A. (2005). Evaluating the Quality of Medical Care. *The Milbank Quarterly, 83*(4), 691-729. DOI: https://doi.org/10.1111/j.1468-0009.2005.00397.x

Dotado-Maderazo, J. U. &Ercia, V. J. (2016) Correlates in the Mock Board Examination and Theoretical Phase of the Dentist Board Licensure Examination in one Private Academic Institution in the Philippines. *Asia Pacific Journal of Multidisciplinary Research, 5*(1), 57-64.

Edenfield, S.M., & Hansen, J.R. (2000). Relationships among Dental Hygiene Course Grades, Mock Board Dental Hygiene Examination, and the National Board Dental Hygiene Examination. *J Dent Educ, 74*(2), 124-9

Efurd, M. G. (2012). Predictors of Academic Success for the National Board Dental Hygiene Examination and the Southern Regional Testing Agency Clinical Exam." Theses and Dissertations. 577. http://scholarworks.uark.edu/etd/577

Faltado III, R. (2014). Correlates of Performance in the Licensure Examination of Selected Public and Private Teacher Education Institutions. *International Journal of Education and Research, 2*(8), 167-176.

Gagne, M., & Deci, E.L. (2005). Self-determination Theory and Work Motivation. *Journal of Organizational Behavior, 26*(4), 331-362. https://doi.org/10.1002/job.322

Galleher, C., Rundquist, P.J., Barker, D.B., & Chang, W.P. (2012). Determining Cognitive and Non-cognitive Predictors of Success on the National Physical Therapy Examination. *The Internet Journal of Allied Health Sciences and Practice. 10*(4), 1-10. Retrieved on November 13, 2018 from https://nsuworks.nova.edu/ijahsp/vol10/iss4/7/

Gono, E.R. (2016). Probabilistic Estimation of Passing the Pharmacist Licensure Examination. *University of Mindanao International Multidisciplinary Research Journal, 1*(2), 132-139.

Hamerslough, R D. (2008). "Predictors of Success for Passing the National Board Dental Hygiene Examination and the California State Dental Hygiene Board Examination", La Sierra University, ProQuest Dissertations Publishing. Retrieved on November 10, 2018 https://search.proquest.com/openview/71ab9088f504e15d9d43da50484709b8/1?pq-origsite=gscholar&cbl=18750&diss=y

Hangrosky, U., Formicola, A.J., Lichtenthal R., Schmidt H.J. & Myers, R. (1981). Clinical Competency Levels of Fourth Year Dental Students as Determined by Board Examiners and Faculty Members. *J Am Dent Assoc, 102*(1), 35-7. DOI: https://doi.org/10.14219/jada.archive.1981.0027

Herrera, C., & Blair, J. (2015). Predicting Success in Nursing Programs. *Research in Higher Education Journal, 28*(1), 1-8. Retrieved on November 24, 2013 from https://files.eric.ed.gov/fulltext/EJ1062101.pdf

Hill-Besinque, K., Wong, W.Y., Louie, S.T., & Rho, J.P. (2000). Predictors of Success Rate in the California State Board of Pharmacy Licensure Examination. *American Journal of Pharmaceutical Education, 64*(1), 50–53.

Jessee, SA. (2002). An Evaluation of Clinical Mock Boards and Their Influence on the Success Rate on Qualifying Boards. *J Dent Educ, 66*(11), 1260-1268.

Koole, S., Brulle, S.V.D., Christiaens, V., Wolfgang, J., Cosyn, J., & De Bruyn, H. (2017). Competence Profiles in Undergraduate Dental Education: A Comparison between Theory and Reality. *BMC Oral Health, 17*(1), 109. DOI: 10.1186/s12903-017-0403-4

Lianza, T.S. (2016). Performance in the CPA Licensure Examination of Bachelor of Science in Accountancy: Inputs to Developmental Activities for Undergraduate Students, *International Journal of Education and Research, 4*(1), 405-414.

Manalo, M., & Obligar, K. (2013). "Correlation of the LPU Mock Board Examination and Customs Broker Licensure Examination for Academic Year 2008-2010." Retrieved on November 12, 2018 from https://worldconferences.net/proceedings/gse2013/papers_gse2013/157%20Marie%20Kristine%20Joy%20M.%20Obligar.pdf

Martin, V.M., Rogo, E.J., Hodges, K.O., Piland, N.F., & Osborn, S.E. (2017). The Relationship Between Mock Boards and Clinical Examinations in Dental Hygiene Education. *J Dent Educ 81*(1), 54-64.

Menecio, Jocelyn. (2002). Academic Predictors of the Certified Public Accountant Board Examination Performance of Accounting Graduates of St. Louis University. UnpublishedMasteralThesis.St.Louis University, Baguio City, Philippines.

Navarro, R., Vitamog, A., Tierra, R.J. & Gonzales, D.M. (2011). Predictors of Nursing

Board Examination Performance. *JPAIR Multidisciplinary Journal, 6*(1), 232-246. doi: http://dx.doi.org/10.7719/jpair.v6i1.147

Neri, D.L. (2009). Intellective Variables as Predictors to Nursing Licensure Examination Performance. *Liceo Journal of Higher Education Research, 6*(1), 56-75. Retrieved on November 26, 2018 from http://www.eisrjc.com/documents/Intellective_Variables_as_Predictors_to_Nursing_-_Licensure_Examination_Performance_1325761219.pdf

Neumann, L.M., & MacNeil, R.L. (2007). Revisiting the National Dental Board Examination. *J Dent Educ, 71*(10), 1281–92.

Nordin, S., Fatimah, W., Wan Ahmad, W.F., Yunus Nayan, M., Yahya, N., Abdullah, A., …Mohd Yunus, O. (2012). A Conceptual Framework in Examining the Contributing Factors to Low Academic Achievement: Self-Efficacy, Cognitive Ability, Support System and Socio-Economic, International Conference on Management, Social Sciences and Humanities, 2012

Ong, M., Palompon, D. & Bañico, L. (2012). Predictors of Nurses' Licensure Examination Performance of Graduates in Cebu Normal University, Philippines. *Asian Journal of Health, 2*(1), 130-141. doi: http://dx.doi.org/10.7828/ajoh.v2i1.122

Pachejo, S. and Allaga, W. (2013). Academic Predictors of the Licensure Examination for Teachers' Performance of the Rizal Technological University Teacher Education Graduates. *International Journal of Educational Research and Technology,* 4(4), 31-40.

Pascua, J.B., & Navalta, J.D. (2011). Determinants of L.E.T. Performance of the Teacher Education Graduates in a State University. *JPAIR Multidisciplinary Journal 6*(1), 90-102.

Pasia, J., Garzon, M., & Bauyot, M. (2012). Determinants of Performance of Graduates in the Medical Technologist Licensure Examination. *Asian Journal of Health, 2*(1). doi: http://dx.doi.org/10.7828/ajoh.v2i1.116

Pornillos, C. M., & Castro, M. P. (2015). Predictive Validity of the Clinical Performance of Graduates of the University of the East in the Practical Dental Board Licensure Examination. *UE Research Bulletin, 17(1).* Retrieved on November 13, 2019 from http://ejournals.ph/form/cite.php?id=11318

Porter, M.E. (2010). What is Value in Health Care? *N Engl J Med, 363*(26), 2477–2481. DOI: 10.1056/NEJMp1011024

Puertos, J.D. (2015). Performance on the Licensure Exam for Teachers among Liceo de Cagayan University Education Graduates. *Liceo Journal of Higher Education Research.* DOI: 10.7828/ljher.v11i1.896

Quiambao, D.T., Baking, E.G., Buenviaje, L.B., Nuqui, A.V., & Cruz, R.C. (2015). Predictors of Board Exam Performance of the DHVTSU College of Education Graduates. *Journal of Business & Management Studies, 1*(1), 1-4.

Ranney, R.R., Wood, M., & Gunsolley, J.C. (2001). Works in Progress: A Comparison of Dental School Experiences between Passing and Failing NERB Candidates. *J Dent Educ 2003, 67*(3), 311-6.

Ronda, R.A. (2010, September 1). New CHED chairman admits low passing rate in board

exams. *Philstar.* Retrieved on November 12, 2018 from http://www.philstar.com/headlines/607681/new-ched-chairman-admits-low-passingrate-board-exams

Shannon, S.A. (1989). Variables that Predict Success on the National Board Dental Hygiene Examination. *J Dent Educ, 63*(2), 73-76.

Stacey, D.G., & Whittaker, J.M. (2005). Predicting Academic Performance and Clinical Competency for International Dental Students: Seeking the Most Efficient and Effective Measures. *J Dent Educ, 69*(2), 270–80.

Stewart, C.M., Bates, R.E., & Smith, G.E. (2004). Does Performance on a School-Administered Mock Board Predict Performance on a Dental Licensure Exam? *J Dent Educ, 68*(4), 426-32.

Stewart, C.M., Bates, R.E., & Smith, G.E. (2005). Relationship between Performance in Dental School and Performance on a Dental Licensure Examination: an Eight-Year Study. *J Dent Educ, 69*(8), 864–9.

Stewart, C.M., Bates, R.E., Smith, G.E., & Young, L. (2006). Impact of Gender on Dental State Licensure Examination Performance. *J Dent Educ, 70*(5), 525-30.

Truman, J. (2012). Identifying Predictors of National Council Licensure Examination for Registered Nurses (NCLEX-RN) Success in an Associate Degree Nursing Program. *International Journal of Applied Science and Technology 2*(7), 37-45. Retrieved on November 24, 2013 from https://pdfs.semanticscholar.org/b467/f15d2df7f675799d7d40996a5dc4fe8543e0.pdf

Utzman, R., Riddle, D., & Jewell, D. (2007). Use of Demographic and Quantitative Admissions Data to Predict Performance on the National Physical Therapy Examination. *Physical Therapy, 87*(9), 1181-1193. DOI: 10.2522/ptj.20060222a

Van der Vleuten, C. (2000). Validity of Final Examinations in Undergraduate Medical Training. *BMJ, 321*(7270), 1217-1219. DOI: 10.1136/bmj.321.7270.1217