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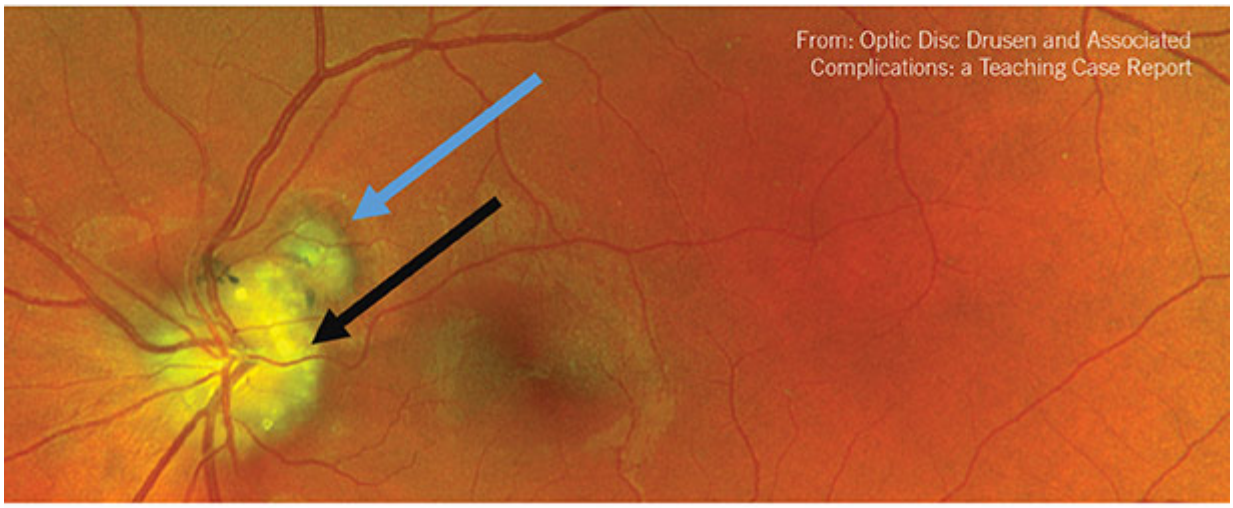

From: Optic Disc Drusen and Associated Complications: a Teaching Case Report

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Optometric Education: Volume 48 Number 1 (Fall 2022)

Table of Contents

Articles

PEER REVIEWED

GRIT Survey Score in First-Year Optometry Students: Pre-COVID vs. Mid-COVID

Patricia M. Cisarik, OD, PhD, FAAO | *Optometric Education: Volume 48 Number 1 (Fall 2022)*

Abstract

This study examined self-reported resilience in first-year optometry students using Duckworth's GRIT survey. Early in 2022, first-year students were given 2 weeks to voluntarily respond to the digitally administered survey (10 items). One-way ANOVA was used to compare mean GRIT score for 2022 with the scores for first-year students in 2017 and 2018 available from earlier studies. The difference in mean GRIT score was significant across years, with post hoc analysis finding a difference between 2022 and both 2017 and 2018, but not between 2017 and 2018. Whether the change in self-reported resilience has practical implications for future performance merits attention.

Key Words: *GRIT, resilience, pandemic, first-year students, healthcare students*

Introduction

In her book "GRIT: The Power of Passion and Perseverance," Angela Duckworth, PhD, describes her theory of how a willingness to persevere in pursuit of long-term goals is among the most important predictors of an individual's success.[1] ("GRIT = "growth," "resilience," "intrinsic motivation" and "tenacity.") To test her theory, Duckworth created a "GRIT" survey and administered the survey to several populations, including West Point cadets and University of Pennsylvania undergraduate students. Her results showed that their GRIT scores were just as powerful at predicting success in their programs as measures that are believed to reflect natural aptitude, such as the Scholastic Aptitude Test. Although her work has undergone much scrutiny,[2-4] the concept that passion and perseverance play significant roles in success pervades.

Other researchers have used Duckworth's survey and other perseverance assessment tools to explore the concept of GRIT in various student populations. Bowman et al. found that "perseverance of effort predicted greater academic adjustment, college grade point average, college satisfaction, sense of belonging, faculty-student interactions and intent to persist …"[5] With respect to academic achievement in graduate rehabilitation science programs (physical therapy, occupational therapy, speech-language pathology), a systematic review/meta-analysis revealed that GRIT has a moderate, positive, significant correlation with academic performance.[6] Cisarik showed similar GRIT scores across two consecutive classes of first-year students in an optometry program, demonstrating consistency in the degree of self-reported persistence as measured with Duckworth's survey early in the academic career for this profession.[7] Cheung et al. found that lower GRIT scores were associated with adverse childhood events in a group of university students recruited for the study from 12 universities.[8] Lee et al. demonstrated that GRIT is not a fixed personality characteristic, as the score can be enhanced with participation and advancement in taekwondo.[9] Others have shown a positive association between teacher-student rapport and GRIT.[10]

According to Duckworth's original publication, perseverance to accomplish long-term objectives requires endurance when circumstances are difficult.[11] The persistence of the global COVID-19 pandemic offers an opportunity to examine the effects on long-term stress and uncertainty on perseverance. Using Duckworth's GRIT survey, we compared the self-reported measures of perseverance of first-year students in the optometric program in early 2022 (mid-COVID pandemic) with scores from two classes of pre-COVID-19 first-year optometry students.[12,13]

Methods

The research protocol conformed to the tenets of the Declaration of Helsinki, and the Institutional Review Board (IRB) of Southern College of Optometry (SCO) determined that the survey methodology qualified this study for exemption from IRB review.

As part of an optional extra-credit activity (one point toward the final course grade that could not be used to pass the course as a whole) for the visual sensation and perception course at SCO, 137 students in the first year of the program in the spring semester of 2022 were invited to take the GRIT survey designed by Dr. Duckworth. The survey was administered electronically using the Google Forms platform. The instructions given in writing before the survey questions were as follows:

This survey was created by Angela Duckworth, author of "GRIT: The Power of Passion and Perseverance." Read each sentence, then select the choice that best describes you relative to the sentence. Don't overthink the questions. Just ask yourself how you compare to "most people" (not just how you compare to your family, friends or co-workers). All answers are required.

Students were told that the survey would take approximately 10-15 minutes to complete and were given 2 weeks to respond. Only one set of responses was accepted per student. If a student signed on more than one time to complete the survey, only the first completion (identified by a time stamp) was used in the analysis.

Statistical analysis was performed using SPSS (v.26.0) to compare the GRIT survey scores for the first-year students in 2022 with the scores of the first-year students in the optometry program at SCO in 2017 and 2018 that had been obtained for other studies.[12,13]

Results

A total of 132 first-year students in the spring of 2022 responded to the survey. The proportions of respondents for 2017, 2018 and 2022, respectively, were 100% (all 132 students), 93.3% (126 of 135 students) and 96.4% (132 of 137 students). The respondents for 2022 had completed one semester of online-only lecture courses and in-person labs with reduced lab class size and other COVID safety protocols in place. The respondents for 2017 and 2018 had completed one semester with access to both in-person real-time lectures and recorded lectures as well as full-sized lab classes (28-30 students per lab section) during the semester prior to the collection of their GRIT survey responses.

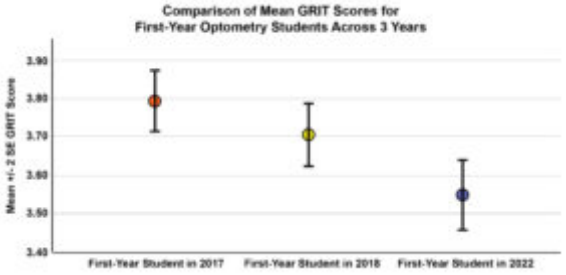

Figure 1. Error bars represent the standard error (SE) of the

mean. See text for statistical analysis.
Click to enlarge

Figure 1 shows the comparison of the mean GRIT scores (± 2 standard error, SE) across the three groups. The mean GRIT scores (standard deviation, SD) for 2017, 2018 and 2022, respectively, were 3.79 (0.47), 3.70 (0.47) and 3.55 (0.53). One-way ANOVA test indicated that the means of the GRIT scores for the three groups were significantly different (F = 8.51, 2-tailed p < .001). Post hoc analysis using Tukey's test indicated that mean GRIT score for 2022 was significantly different (lower) from that of 2017 (p < .001, 95% CI = [-.38, .-10]) and 2018 (p = .03, 95% CI = [-.30, -.01]), but the mean GRIT score for 2017 was not significantly different from the 2018 score (p = .311, 95% CI = [-.05, .23]).

Independent samples Kruskal-Wallis test was used to compare the distribution of responses to individual survey items across the years of survey administration, and the results for the items with significant differences between 2022 and the other two years are presented in **Figure 2**. Differences were found for item 1, "New ideas and projects sometimes distract me from previous ones" (**Figure 2a**, test statistic = 11.96, 2-tailed p = .003); item 8, "I am diligent. I never give up" (**Figure 2b**, test statistic = 14.68, 2-tailed p < .001); and item 9, "I have been obsessed with a certain idea or project for a short time, but later lost interest" (**Figure 2c**, test statistic = 17.86, 2-tailed p <. 001).

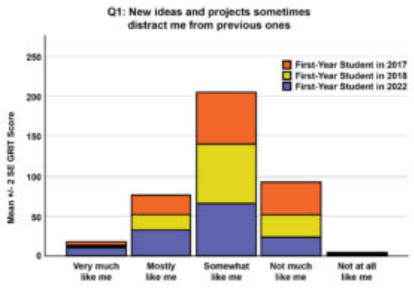

Figure 2a. The distribution of responses for item 1 (and items 8 and 9) on the GRIT survey was significantly different across classes. Click to enlarge

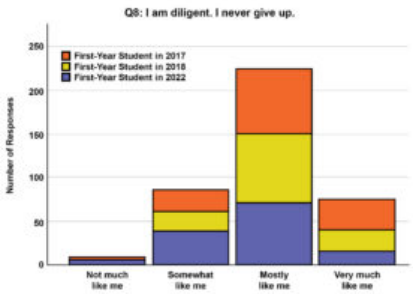

Figure 2b. The distribution of responses for item 8 (and items 1 and 9) on the GRIT survey was significantly different across classes. Click to enlarge

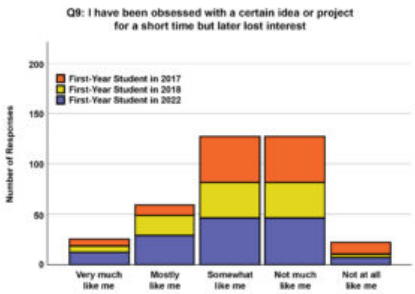

Figure 2c. The distribution of responses for item 9 (and items 1 and 8) on the GRIT survey was significantly different across classes. Click to enlarge

Discussion

The main finding of this study is that for first-year students at SCO, the mean GRIT score in 2022 was significantly different from the mean GRIT scores in 2017 and 2018; whereas, the mean GRIT scores for 2017 and 2018 did not significantly differ. This difference appears to be attributed to a difference in the distribution of responses across the years to survey items 1, 8 and 9.

The possibility exists that the lower mean GRIT score for the 2022 subjects is an expected statistical variation in the samples drawn from the population, but as evidenced by the minimal overlap of the standard error bars in Figure 1, that likelihood is very small. Given that the academic demographics on matriculation to SCO are similar for the 3 years of first-year students in this study,[14] different education experiences or achievement do not explain the differences in mean GRIT scores. We did not query our subjects on factors reported to be associated with GRIT score, such as adverse childhood events,[8] recent alcohol or marijuana use[15] or socio-economic status,[16] but education accomplishment at the time of survey administration was similar across years.[11] With the sudden and recent economic decline experienced by many families due to the onset of the COVID-19 pandemic, we cannot rule out the influence that economic hardship may have had on the 2022 GRIT scores.

While many factors outside a specific academic arena are associated with academic success (prior academic achievement, emotional intelligence, motivation, self-regulated socio-cognitive skills, goals

orientation),[17] studies that have examined the academic environment's influence on GRIT have identified some areas that may have been adversely influenced by the pandemic. For example, Yuan reported that teacher-student rapport and teacher "stroke" (positive reinforcement of student performance) both were positively associated with learners' GRIT.[10] Whether consciously or unconsciously, instructors at SCO may not be engaging with students mid-COVID to the same extent as pre-COVID, or the masks and other social-distancing measures may be impeding attempts at student engagement.

Several studies have examined the association between "burnout" or "emotional exhaustion" and measures of perseverance. A survey of emergency department residents in 2016 found that those meeting the criteria for burnout as assessed by the validated Maslach Burnout Inventory had significantly lower mean GRIT scores than those of residents not meeting the criteria for burnout.[18] Note that this study was done prior to the COVID-19 pandemic. In 2020 Jumat et al. published a study demonstrating that higher GRIT scores measured at the beginning of the first year appear to protect first-year medical students from experiencing burnout symptoms later in the year.[19] Thus, if a similar relationship between GRIT score and future burnout exists for first-year optometry students, our institution may experience the effects of their burnout in the near future, such as lower overall grade point average of graduates, lower national board scores, more students electing to drop from the program, fewer applicants for residency positions (or more applications for residencies if the acquisition of a residency is seen as a buffer against future economic hardship).

A respondent receives between 1 and 5 points for each item on the GRIT survey based on the response chosen for each item. The total number of points for the survey is divided by 10 to calculate the GRIT survey score for an individual respondent. The mean GRIT score of 3.55 (on a scale of 1-5, with 5 representing high GRIT) places the first-year students in 2022 in the 40th percentile by Duckworth's scale, which was developed based on a large sample of adults. The mean GRIT scores for 2017 and 2018 on this same scale place those groups in the 50th percentile. Both of these mean GRIT score values are lower than the mean value (4.01 ± 0.42) reported for medical students in 2014.[20] Whether the significantly different mean GRIT score for the first-year students in 2022 will have practical implications for them or for the institution is unknown. Also unknown is whether the scores for the first-year students in 2022 are actually higher or lower than they would have been if measured immediately upon matriculation. While research involving nursing students has shown improved GRIT score with accomplishment and age,[16] no clear relationship between GRIT score and program level manifested (pre-COVID-19) in a cohort of pharmacy students.[21]

Training to improve one's resilience is offered by therapists,[22] clinics[23] and the U.S. Army.[24] A meta-analysis of small randomized trials of the efficacy of such programs showed that most of the studies had moderate to high bias.[25] Nonetheless, generalized stress-directed programs showed a moderate effect on enhancing resilience.[25] In a study with a short-term follow-up, resilience training in healthcare workers in a hospital setting demonstrated that the implemented program was feasible and accepted and generated improved outcomes.[26] A separate meta-analysis of studies examining resilience training specifically in healthcare workers found the interventions to have moderate effects on resilience and stress, but the evidence had very low certainty.[27] Our previous work showed no relationship between GRIT score and grades in two individual classes.[7] Whether a relationship exists between resilience and success in an optometric program as a whole, success on board examinations or success in a post-graduate residency program is unknown. Thus, further research, perhaps using other validated tools for assessing resilience, as well as studies of the effects of specific interventions, is needed before recommendations for resilience training in optometric education can be made.

Alternatively, the lower 2022 GRIT scores may reflect another aspect of the changing demographics of students entering optometry school. The DISC survey is a behavioral/personality self-assessment tool used widely by individuals and organizations to understand how personal behaviors impact

communications.[28] The “S” component of this tool stands for “steadiness” and reflects the characteristics of patience, collaboration, calm approach and humility.[29] While some of these characteristics are desirable in caring for patients, a high score in this section of the survey indicates that the individual prefers to work in the background and to avoid conflict or change.[28] This communication style emphasizes cooperation with others within the existing circumstances, as opposed to challenging oneself and others.[28] According to Lisa Wade, OD, Director of the Hayes Center for Practice Excellence at SCO, the mean “S” score in the DISC assessment she uses for first-year optometry students at the college continues to trend upward and is well above the national average (personal communication).[29]A formal comparison of the DISC scores and the GRIT scores in the same group of optometry students could prove informational.

The current study has several limitations. GRIT scores for first-year optometry students at SCO are available for 2017 and 2018, but not for years earlier or later, except for 2022. Thus, we were unable to determine whether the difference observed in the data is likely to be pandemic-related or part of an already-existing trend. Nevertheless, the association between lower GRIT scores and less resilience or higher burnout,[17,18] regardless of the influence of the pandemic, suggests that promoting resilience through instructor-student engagement and frequent positive feedback may help to mitigate burnout in optometry students.

Another limitation of this study is that the data were collected from only one optometric program. SCO, as one of the larger optometric programs in the United States, has had an entering class size of approximately 135 for the past two decades. Academic records of matriculating students may vary somewhat across optometric institutions. If the within-institution entering data is similar across years, then any difference in GRIT score trends from the trend reported from the SCO data may be related to class size and, perhaps, a difference in feelings of school connectedness.[30] Jorgenson et al. reported that dimensions of school connectedness vary based on student age, with students ages 21-25 experiencing a higher degree of connectedness based on interactions with faculty, rather than with other students.[31] Establishing regular faculty-student interactions may be more easily accomplished in environments with fewer total students. Whether any interference in faculty-student interactions caused by adjustments in teaching to accommodate safety protocols related to COVID differed between larger and smaller optometric programs is unknown.

A third limitation of this study is the lack of data collection for assessment of student well-being, such as for depression or anxiety, for any of the study years. A meta-analysis of post-secondary student mental health during COVID-19 revealed pooled prevalence estimates of elevated depressive symptoms in 30.6% and elevated anxiety symptoms in 28.2% of students, unrelated to their level of training.[32] With respect to student perceptions of the impact of COVID-19 on their medical education, Haskett et al. found that students with higher GRIT scores reported less anxiety, insomnia and tiredness.[33] An understanding of the relationship, if any, between GRIT scores and symptoms of anxiety or depression in optometry students would help determine whether institution-level changes are indicated, or whether interventions on an individual student basis would be more effective.

Conclusion

The assessment of resilience using Duckworth’s GRIT survey in first-year optometry students across several years suggests that the students tested mid-COVID-19 pandemic rate themselves as less “gritty” than first-year optometry students from two different pre-COVID-19 years. Although the factors contributing to this change are uncertain, awareness of the change and of factors that can improve the sense of resilience may be helpful in mitigating undesired academic outcomes or career decisions for optometry students.

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PEER REVIEWED

After-Hours Practice Time and Optometric Theory and Methods Laboratory Success in Remote Online Learning

Mariem Abdou, OD, MS, FAAO, Zoeanne Schinas, OD, Gregory M. Fecho, OD, and Bin Zhang, MD, PhD | Optometric Education: Volume 48 Number 1 (Fall 2022)

Abstract

The COVID-19 pandemic shifted optometry education into online learning. Incoming first-year students at Nova Southeastern University completed their first semester remotely and were tested on optometric skills upon return. Students were surveyed on the amount of time they spent practicing throughout the semester and during the week of testing. During the semester, a significant positive linear relationship existed between the pass rate and hours spent practicing retinoscopy and subjective refraction. During exam week, the pass rate for subjects who spent 1 hour was low in all skills but dramatically increased with 2 hours. Pass rates decreased beyond 2 hours of practice.

Key Words: optometric skills education, online remote learning, student competency, laboratory practice, hands-on learning

Introduction

At the onset of the COVID-19 pandemic in March 2020, the majority of education institutions suspended face-to-face in-person teaching, closed their campuses and moved their course curricula to remote online learning.[1,2,3,4] This transition posed a problem for clinical laboratories in optometric curricula. Clinical laboratories involve hands-on learning of procedural skills with in-person preceptor instruction. This hands-on nature proved challenging for faculty transitioning to virtual platforms and for student learning.[2]

Online learning has been around for some time; however, its use in practice-based learning has been limited until the recent pandemic. While online learning and blended teaching has been effective in many courses at different institutions,[5,6] practice-based learning, or hands-on learning, in clinical laboratories has been the traditional method of delivering education in various fields of medicine. As with any learning strategy, some students excel while others struggle, and the transition to online learning during the COVID-19 pandemic was no different. Several studies have looked at how blended learning, simulated learning environments, clinical simulators and other strategies influence student education.[1,5,6]

Many institutions have implemented forms of virtual learning within lab-related courses. A study published in 2016 assessed the effect of short-term exposure to a simulated learning environment on student clinical subjective refraction performance. Fourth- and fifth-year optometry students enrolled in the 5-year dual Bachelor of Vision Science and Master of Optometry degree program at the University of Aukland were assessed. Results demonstrated a positive influence for the less-experienced students.[7] In another study, the University of Auckland conducted a survey to evaluate whether their students, using a blended teaching approach of either a static or an interactive website for Ocular Anatomy and Physiology, obtained better examination scores than students in the previous year who only had access to a static website. They also assessed the students' perceptions and impressions of the interactive vs. static website. They concluded that although access to the interactive website did not significantly

improve the students' grades, their responses to the interactive website were positive. However, there were critical comments regarding the absence of educator assistance when using the online tools. This led the researchers to further conclude that for their Ocular Anatomy and Physiology program, a blended style that includes the educator as the main administrator of student learning is necessary.[8]

Pacific University College of Optometry also assessed blended learning, specifically in the optometric procedural courses in the second year of the program.[5] The study compared blended strategies with strictly in-class instruction from previous years and found no significant difference in exam scores between in-class and online teaching.[5] A study at New England College of Optometry involving third-year students compared the effectiveness of an interactive multimedia learning module vs. traditional learning in preparation for in-person B-scan procedural training. Use of the interactive multimedia module resulted in a 20% improvement in test scores and significantly positive feedback on surveys.[6]

Transitioning to a purely online learning environment poses many challenges to both students and faculty. Students are unable to complete practical assessments and receive appropriate grades for courses requiring hands-on procedural skills.[1] Remote online learning also involves a steep learning curve as students and faculty must quickly familiarize themselves with the technology and delivery methods of the curriculum,[1,2] which can include video conferencing platforms, collaboration and communication apps, remote proctoring solutions and others.[3,4] An added limitation to these strategies is the inability to practice the skills on a variety of eyes. This reduces students' competency in the subject matter as they are exposed to less variable scenarios.

Due to the nature of the optometric skills taught in laboratory settings, in-person guidance and instruction has always been the primary method of training across all optometric education institutions. There had not been cause or reason to analyze the teaching and learning of these skills remotely. The pandemic provided a unique opportunity to assess whether online instruction of optometric techniques could be a viable alternative to in-person delivery with equivalent levels of success. The aim of this study was to demonstrate how the number of in-person practice hours correlated with pass rates in different optometry skills after a semester of virtually learning each of these techniques.

Methods

The study was approved by the Nova Southeastern University Institutional Review Board. Each participant provided signed informed consent after discussion about the nature and purpose of the study and guaranteed anonymity of responses. First-year optometry students at Nova Southeastern University completed their first semester of optometry school from home in fall 2020 due to protocols set because of the COVID-19 pandemic. They were taught the Optometric Theory and Methods (OTM) lecture course and laboratory virtually via Zoom with instructional lab videos and live demonstrations. Weekly 2-hour labs were held via Zoom for each lab section with topics taught concurrently with the lecture component.

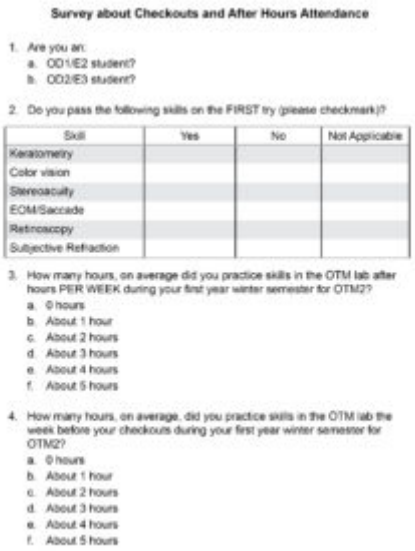
Virtual lectures were delivered over the period of 1 hour for color vision, 1-2 hours for stereoacuity and 2 hours for extraocular muscle (EOM) testing and saccades. Students were provided handheld laboratory equipment for performing the skills at home on roommates or family members. In the virtual lab sessions, 1 hour was dedicated to color vision, 1 hour to stereoacuity and 2 hours to EOM testing. Lab manuals with videos were provided to the students for each skill. Three preceptors were assigned to Zoom breakout groups to address any questions and to see if students had a grasp of the theory. Students paired up and went through the motions of administering the skills, and they were required to complete a worksheet of the activity. Students completed assignments where they recorded themselves performing preliminary skills (color vision, stereoacuity and EOM movements) at home and then critiqued one another's performances along with instructor feedback.

Keratometry instruction was delivered via Zoom for approximately 3 hours and further discussed in a

virtual lab session for 2 hours in the small breakout groups. Diagrams of the instrument labeling all knobs and dials were provided. Worksheet activities and video demonstrations were provided to guide the students, although they could not practice this skill hands-on because they did not have access to this instrument at home.

Retinoscopy content was taught over the course of 3 hours with 6 hours of virtual lab time. Lab manuals and video demonstrations were provided. Students were guided through retinoscopy using schematic eyes, taught how to simulate various spherical and spherocylindrical refractive errors and educated on how to check their work in neutralizing the reflex. They also had to complete a worksheet that guided them through the skill. Preceptors were available virtually to direct them through the activity.

Subjective refraction instruction was provided for 3 hours via Zoom prior to 4 hours of lab sessions. The lecture component included demonstrations of the technique and, again, worksheets were provided during the lab sessions for students to complete in order to understand the steps of refraction. Instructors assisted in breakout rooms to walk through these techniques and provide feedback.



Survey about Checkouts and After Hours Attendance

1. Are you an:
   a. OD1/E2 student?
   b. OD2/E3 student?

2. Do you pass the following skills on the FIRST try (please checkmark)?

Skill	Yes	No	Not Applicable
Keratometry			
Color vision			
Stereoacuity			
EOM/Saccade			
Retinoscopy			
Subjective Refraction			

3. How many hours, on average did you practice skills in the OTM lab after hours PER WEEK during your first year winter semester for OTM2?
   a. 0 hours
   b. About 1 hour
   c. About 2 hours
   d. About 3 hours
   e. About 4 hours
   f. About 5 hours

4. How many hours, on average, did you practice skills in the OTM lab the week before your checkouts during your first year winter semester for OTM2?
   a. 0 hours
   b. About 1 hour
   c. About 2 hours
   d. About 3 hours
   e. About 4 hours
   f. About 5 hours

Figure 1. Survey provided to first-year optometric students at Nova Southeastern University inquiring whether they passed each skill on the first attempt and the number of hours they spent practicing throughout the semester and during the week prior to the exam. Click to enlarge

The students returned to campus in January 2021 and were able to perform these techniques in the laboratory with guidance from three lab instructors. The skills included keratometry, color vision, stereoacuity, EOM movements and saccades, retinoscopy and subjective refraction. Due to strict COVID-19 protocols during this time, students were split into eight lab sections. Each section was assigned weekly evening practice times during which students could sign up for optional 1.5-hour practice sessions. One instructor was present during these after-hours practice sessions to oversee lab activities and ensure safety and social distancing. Due to the inability to properly assess their competence in these skills virtually, testing the students via practical examination format was pushed into the spring semester of 2021. Students were given 1 month of in-person practice time before they were examined on the preliminary and keratometry techniques. Retinoscopy and subjective refraction were tested later in the semester after approximately 3.5 months to allow students more time to practice and utilize actual lab equipment during the semester.

After the spring semester of 2021, students were given a 5-minute survey **(Figure 1)** inquiring how many

hours on average they signed up to practice during the semester and how many hours they practiced the week of their practical exams. They were also asked to voluntarily report which skills they passed or failed on the first attempt.

Data analysis

The pass rate in each OTM skill was calculated and the differences in pass rates were assessed with Chi-square test. Linear regression was applied to explore the association between pass rate and the number of hours spent on each OTM skill. A p-value less than 0.05 indicates statistical significance.

Results

The overall pass rate in keratometry (0.51) was significantly lower than the pass rate in other OTM skills (0.77 in color vision, $p < 0.01$; 0.81 in stereopsis, $p < 0.01$; 0.79 in EOM, $p < 0.01$; 0.76 in retinoscopy, $p < 0.01$; and 0.77 in subjective refraction, $p < 0.01$; Chi-square test). Of the 104 students testing, 53.7% failed keratometry in part due to incorrect documentation, whereas 46.3% failed solely due to inaccurate technique or running out of time.

The average number of after-hours practice throughout the semester was analyzed for preliminary examination skills **(Figure 2)**. Linear regression was applied to reveal the relationship between pass rate and the number of hours spent. Sample sizes less than 9 were not included in the analysis. There was no significant relationship between hours spent and pass rate for color vision (Figure 2B), stereopsis (Figure 2C) or EOM (Figure 2D). However, there was a significant linear relationship between the pass rate and hours spent on practice for retinoscopy (Figure 2E) and subjective refraction (Figure F). Pass rate increased as more hours were spent on practice.

We also analyzed the relationship between pass rate and hours of practice during the week before the test **(Figure 3)**. It should be noted that the pass rate for subjects who spent only 1 hour was low in all OTM skills. There was a dramatic elevation in pass rate for subjects who spent 2 or more hours (Figures 3A to 3F). Due to the small sample sizes of subjects who only spent 1 hour, the dramatic increment did not reach significance. Linear regression was applied to analyze the relationship between pass rate and the number of hours spent. Sample sizes less than 9 were not included in the analysis. There was no significant linear relationship between the pass rate and hours spent on practice for color vision (Figure 3B), retinoscopy (Figure 3E) or subjective refraction (Figure 3F). However, there was a significant relationship between hours spent and pass rate for stereopsis (Figure 3C) and EOM (Figure 3D). Pass rate decreased as more hours were spent on practice the week before the test. In addition, a significant correlation ($r = 0.7338$, $p < 0.001$) was found between after-hours spent during the semester compared to the week of the checkout.

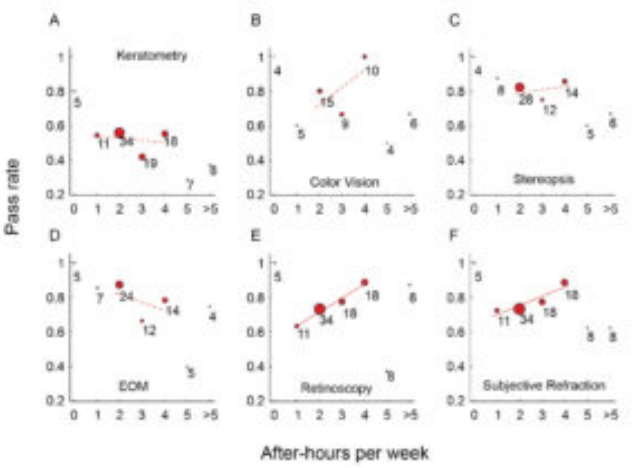


Figure 2. Average number of hours spent practicing in the Optometric Theory and Methods lab during the semester. A solid line indicates a significant regression trend ($p < 0.05$). Symbol size is proportional to the sample size. Samples with a size smaller than 9 were not included in the analysis.
Click to enlarge

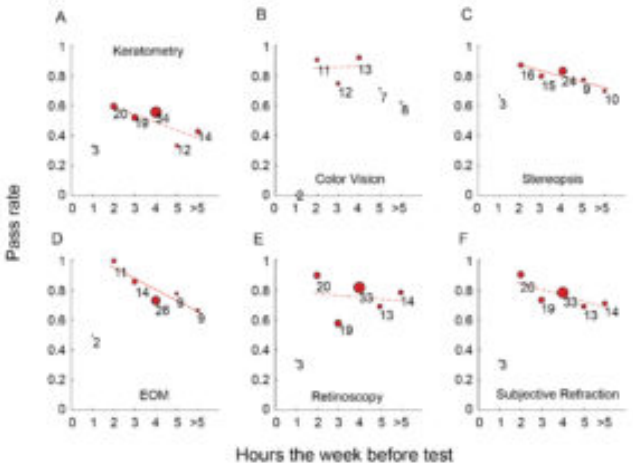


Figure 3. Hours spent practicing in the Optometric Theory and Methods lab the week before the test. A solid line indicates a significant regression trend ($p < 0.05$). Symbol size is proportional to the sample size. Samples with a size smaller than 9 were not included in the analysis. Click to enlarge

Discussion

Based on the COVID-19 safety protocols during this academic year, students were limited in the number of hours they were able to practice in the OTM lab during spring 2021. Students were separated into eight lab sections to reduce the number of individuals in the lab and ensure appropriate social distancing. Prior to COVID-19, the lab was open during evenings and weekends for students to practice at any time with any other student in their class. With slightly more than 100 individuals per class year, students had a large variety of eyes to practice on throughout the semester. The COVID-19 precautions limited students to one or two 1.5-hour practice sessions per week, and they were only allowed to practice with students in their own lab group, which consisted of 14-16 students each. For the entire semester, students were permitted to practice only on a maximum of 16 pairs of eyes, which greatly reduced their exposure to different ocular health conditions and refractive errors. However, students were supervised by an optometry faculty member or resident during each of these practice sessions to offer more support and ensure compliance with safety guidelines.

To our knowledge, no previous studies have evaluated the relationship between student practice time and pass rates. Prior to the pandemic, monitoring which students took advantage of after-hours practice, how long they spent practicing, and who they practiced with was not possible. Pandemic guidelines mandated the monitoring of all these parameters for contact-tracing purposes. During after-hours practice time, students were provided instructor supervision while in the lab, which was not the case prior to COVID-19. This allowed students an additional resource for structured feedback while performing optometric skills so that questions could be answered and errors identified and corrected instantaneously. Before the pandemic, students were practicing on their own after normally scheduled lab time for as long as they desired without observation or suggestions for improvement from a licensed practitioner.

These optometric skills can be separated into three main categories with preliminary tests (color vision, stereoacuity and extraocular muscle movements) as one category, keratometry as another category, and retinoscopy and subjective refraction as the third category. There are differences in the results across

each of these categories. Results revealed high pass rates for preliminary exam skills across the board, which could be due to a lack of need for this skill to be performed in the lab setting with faculty supervision. Equipment required for this testing is mainly portable, and the techniques can be performed at home. Partners can easily modify their responses in order to provide more practice opportunities and troubleshoot how to assess abnormal results. However, keratometry, retinoscopy and subjective refraction all require instrumentation, including a keratometer, phoropter and acuity chart, as well as human eyes, that are available only on campus.

Despite the increased hours of practicing, keratometry still had a higher fail rate compared with the other skills, which could be due to multiple factors. Keratometry was one of the first skills tested after only 1 month of practicing on campus along with the preliminary skills. Despite the high pass rates for the preliminary techniques, keratometry posed a different challenge for students. Because this skill cannot be performed from home and requires use of a keratometer in the lab, students had a limited 1-month timeframe to practice this skill prior to being evaluated. In addition, failure was based on both accuracy of technique as well as proper documentation. The percentage of students failing due to documentation errors was higher compared to the rate of students failing due to inaccuracy of the skill or not completing the skill within the allotted timeframe. This could be due to students using after-hours practice sessions to focus mainly on performance and efficiency and less on documentation because the latter can be reviewed and learned from home. Instructor guidance during these sessions emphasized precision in measurement rather than in recording findings correctly. Because student practice time was restricted, the best use of this lab time was believed to be in performance rather than documentation.

During the week of both practical exams, results demonstrated that 1 hour spent practicing was not sufficient for passing the practical examination. Utilizing the lab for 2 hours during the week of the practicals had the highest pass rates. However, practicing more than 2 hours the week of the practicals did not appear to improve pass rates. These trends were consistent among all skills tested. This indicates that there is an ideal amount of time for students to practice during this stressful week. Spending 3 or more hours practicing during the week of the practical exam may result in burnout for students where they are not improving in technique performance. This may also be due to students fatigue from longer days, less sleep and more stress resulting in lower pass rates.

Performance in optometric skills requires strict dedication to practicing in the lab diligently and consistently. Based on survey responses, students who practiced frequently throughout the semester also likely practiced the most during the week of their practical examination. This study demonstrated that certain skills require more practice and instructor guidance than others. The results demonstrated that preliminary skills can be conducted at home with minimal supervision and equipment. Keratometry, retinoscopy and subjective refraction require more hands-on learning with the use of a laboratory setting. Students benefit from supervision, guidance and instant feedback on skill performance from a licensed practitioner during this time. This study also revealed that more emphasis should be placed on documentation and ensuring that students also practice reading measurements appropriately and recording accurately.

One of the limitations of this study was that the survey simply inquired about the number of hours spent practicing but did not assess the breakdown of time spent on each of the skills. A few students in the class have parents or relatives in the optometric field and may have had the advantage of access to office equipment during the remote sessions in fall 2020. However, based on informal student feedback, the majority of students moved to residences near campus to attend the virtual semester in order to better focus on coursework away from home. General trends from instructor feedback indicated that students tended to practice the skill of the week during their after-hours session early in the semester. They then practiced all skills together closer to their practical exam weeks as they became more proficient. However, there was no formal assessment of the exact number of hours spent on each technique after-hours. A future study may be conducted to specify how many hours were spent

practicing each of the skills individually.

An additional limitation to the study was the lack of comparing this data to a class year prior to the pandemic when students had full access to the lab and all hands-on learning. Although previous class years had unlimited access to the lab and could practice on any classmate, they lacked the added advantage of having an instructor present during all after-hours sessions to provide guidance and immediate feedback. A future study may collect this data for comparison purposes.

Another limitation of this study was that students were asked to self-report the information. Data can be skewed if students did not report truthfully or accurately. Inquiring about how many hours they practiced in the lab is considered an estimation with room for error. A future study may review the sign-in sheets and accurately calculate each student's exact number of hours in the lab throughout the semester. Students also self-reported whether they passed or failed each skill, which may lead to participants falsifying their responses to avoid shame or disappointment. However, when the number of students who failed due to documentation errors on keratometry was reviewed, it correctly matched the number of students reporting passing or failing of this skill. Student pass or fail responses were compared via grading reports for each skill and confirmed consistency between the self-reported grades and actuality. This provides investigators with greater confidence in the accuracy of self-reporting.

Conclusion

This study indicated that students can achieve high success rates in performing preliminary optometric skills despite the skills being taught virtually and with minimal instructor feedback. However, keratometry, retinoscopy and subjective refraction are skills that required lab instrumentation and consistent after-hours practicing in order for students to successfully pass.

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PEER REVIEWED

Queering Optometric Education

Marlee M. Spafford, OD, MSc, PhD, FAAO, Paula S. McDowell, OD, FAAO, and Lillian Kalaczinski, OD, FAAO | Optometric Education: Volume 48 Number 1 (Fall 2022)

Abstract

People identifying as sexual or gender minorities experience preventable health disparities through decreased opportunities to achieve optimal health and increased burdens of disease, injury, and violence. Some health professional schools have introduced relevant curricula, yet the optometric education literature is silent on such training, suggesting a potential problematic gap in the training of future optometrists. In this paper we lay out a justification for updating optometric education and offer curricular and pedagogical guidance. We adapt medical competencies for optometry to stimulate a conversation among optometric educators about how we train optometry students to provide competent care to diverse and often mistreated communities.

Key Words: *optometric education, competencies, sexual and gender minorities, queer, health disparities*

Introduction

Providing competent eye and vision care for all is an ideal espoused in optometric accreditation standards, cultural competence guidelines, and codes of ethics.[1–4] Yet, neither these sources nor the optometric literature explicitly address the care implications for patients who identify as sexual or gender minorities. This absence is important because sexual and gender minorities experience preventable health disparities through fewer opportunities to achieve optimal health and a greater burden of disease, injury, and violence.[5] Some health professional schools have introduced curricula that consider the impact of gender and sexual identity on patient care priorities and needs.[6–10] However, the optometric education literature has remained silent on this aspect of training, suggesting a potential problematic gap in the training of future optometrists.

The lack of explicit attention to this area of care begins with the Accreditation Council on Optometric Education (ACOE) standards that require graduates of the professional optometric degree to attend to “diverse populations” (2.9.5), “diversity, equity, and inclusion principles” (2.9.6), and “culturally competent communications” (2.9.8).[1] Similarly, graduates of ACOE optometric residencies must provide patient education, communication, and shared decision-making that is “culturally competent” (2.4.1).[1] Nowhere, however, is “cultural competence” defined. In contrast, American medical schools can map their curricula to the Association of American Medical Colleges (AAMC) general competencies that include an explicit recognition of multiple relevant identities: “Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation” (5.5).[11]

Despite this AAMC competency, problems persist. In Canada and the United States, medical education about sexual and gender minorities’ health has been described as limited, inconsistent, and devoid of agreed-upon specific core competences.[12] Studies in the past 10 years have found that formal education on this topic is limited to a median of 5 hours[13] and most students judge their training as “fair” or worse.[14] Transgender training is typically identified as the most limited sector of sexual and gender minorities health education.[15–17] Limited trans health education has been found to be a barrier to competent care by medical students and residents.[13,18–23] In a qualitative study of Canadian physicians, Snelgrove et al.[24]

compellingly characterized medical care of transgender patients as “completely out-at-sea” in part because of the normative practice of “two-gender medicine.”

Reviews and studies of medical student and resident training do not reveal pedagogical and curricular consensus; however, there is support for adopting multi-modal, scaffolded approaches that are founded in cultivating values, exploring self-awareness of privilege and bias, and enhancing communication skills.[25–28]

The AAMC publication “Implementing Curricular and Institutional Climate Changes to Improve Health Care for Individuals who are LGBT, Gender Nonconforming, or Born with DSD: A Resource for Medical Educators”[29] discusses competencies, strategies for integrating and assessing these competencies, as well as clinical scenarios and discussion points. Thirty competencies have been set across eight domains: knowledge for practice, patient care, practice-based learning and improvement, interpersonal and communication skills, professionalism, systems-based practice, interprofessional collaboration, and personal and professional development.

To date, there are few indications that the profession of optometry recognizes the need for care and training that attends to sexual and gender minorities. Denial et al.[30] and the Association of Schools and Colleges of Optometry (ASCO) “Guidelines for Culturally Competent Eye and Vision Care”[4] acknowledge that culturally competent optometric care includes a consideration of gender and sexual orientation, although no specific guidance is provided. The ASCO guidelines[4] — currently under review — may ultimately deepen consideration of sexual and gender minority care because ASCO recently released a set of case studies[31] that includes one case about respecting a patient’s pronouns and preferred name. Two of us (PSM & LK) have provided American Academy of Optometry lectures on “Optometric Care of Transgender Patients.”[32,33]

In this paper we aim to start redressing this apparent educational gap by laying out a justification for updating optometric education and providing curricular and pedagogical guidance. We take the AAMC competencies[29] and adapt them for optometry in an attempt to stimulate a conversation among optometric educators about how we train optometry students to provide competent care to diverse and often mistreated communities.

Justifying a 2SLGBTQ+ Inclusive Optometry Curriculum

The justification for inclusive optometry curricula lies in the regularity that members of sexual and gender minority communities present for eye care, the health disparities they routinely experience, and the prevalent health impacts they encounter. A brief review of this literature anchors this justification.

Defining the communities

LGBT (lesbian, gay, bisexual, and transgender) is widely used, yet it mixes populations whose identities are based on sexual orientation (i.e., lesbian, gay, bisexual) and gender identity (i.e., transgender), it falsely implies mutually exclusive categories, it incorrectly presumes homogeneity regarding needs and priorities, and it presupposes binary masculine/feminine and hetero/cisgender norms. Cover[34] discusses the continually evolving “taxonomy” that proliferates in an attempt to include disenfranchised voices from traditional LGBT and binary-norming discourses. The recognition that LGBT fails to fully describe all sexual and gender minorities has led to various longer acronyms. In this paper, we use 2SLGBTQ+ to acknowledge that “two-spirit” (2S) Indigenous people were the first sexual and gender minorities living on Turtle Island (North America), gender queer individuals (Q) have non-binary gender identities, and additional sexual and gender minorities exist (+).[35]

The AAMC “Resource for Medical Educators”[29] maintains the LGBT “shorthand,” separating the differing

care needs within that grouping, and considers two additional diverse populations to address the LGBT-identity shortfall: people who are “gender nonconforming” and people “born with differences in sex development” (DSD). Gender non-conforming people purposefully express their gender differently from gendered societal norms, while people born with DSD have atypical features of their gonads, genitalia, or sex chromosomes (e.g., congenital adrenal hyperplasia, androgen insensitivity syndrome, Klinefelter Syndrome, Turner Syndrome). This AAMC resource importantly notes that identities are declared by the person; the process of establishing one’s identity naturally evolves over time, particularly among youth; and gender identities do not predict sexual histories, practices, and feelings.

Estimates of the 2SLGBTQ+ population in North America depend on self-reporting and survey wording.[36] Statistics Canada and the United States Census Bureau have historically collected binary female/male data; however, this strategy fails to recognize sex-gender differences or capture non-binary identities. This can be remedied with a survey that employs a two-step question about the person’s assigned sex at birth and their current gender identity, with the latter including transgender and non-binary options. Statistics Canada has collected sexual orientation data since 2003 and adopted the two-step question in its 2021 census,[36–38] while the United States Census Bureau has yet to collect either.[39] American estimates can be gleaned from the annual Behavioral Risk Factor Surveillance System (BRFSS),[40] which includes questions about sexual orientation and gender identity without employing the two-step question.

Adult 2SLGBTQ+ community estimates are 3.6% in Canada[41] and 4.5% in the United States[42]; however, age impacts these estimates. North American surveys of younger adults (under 35 years of age) report estimates two to three times higher than surveys of all ages.[41–44] Blackless et al.[45] estimate that one in 100 people are born with DSD, noting that DSD itself does not determine sexual or gender identity. Depending on practice demographics, optometrists will regularly or frequently provide care to 2SLGBTQ+ patients.

Drivers of health disparities

Sexual and gender identities are social determinants of health; this is particularly true of gender identity. Hatzenbuehler and Link[46] identify the underpinnings of health disparities among gender minorities as structural (e.g., government policy, institutional practices), interpersonal (e.g., abuse, rejection, discrimination), and individual (e.g., concealing identity, internalized stigma). Gender identity is a social stratifier that can exclude people from society and services.[25] Sexual and gender minorities experience greater health disparities if they identify with additional socially constructed marginalized identities.[47,48] For example, in addition to facing heterosexist, homophobic, and transphobic oppression, two-spirit Indigenous individuals encounter racist and colonial oppression by government and mainstream society and marginalization within a Western LGBT community.[49] These traumas combine to significantly increase rates of substance abuse, addiction, suicide, morbidity, and mortality relative to non-Indigenous peers.[49] Ng[50] posits that health practitioners need to proactively practice through a lens of intersectionality by acknowledging that membership in multiple minority groups affects patient health in terms of risks, care experiences, decision-making, and outcomes.

Sexual and gender minorities are marginalized by societal heteronormativity and cisnormativity. The former assumes people are and should be heterosexual; the latter presumes gender aligns with assigned sex at birth.[25] These normative assumptions fuel phobias that can be hostile, particularly in the case of transphobia.[25] Social norms regarding sexual and gender identities can inform laws about what constitutes legal consensual sexual behavior and hate crimes, leaving some people — particularly those who are older or have lived in certain countries — not expecting safe health care.[29,51,52] Stigmatized social status creates a “minority stress” that risks mental health and heightens vigilance regarding further negative experiences.[53,54] While minority stress can build resilience in the form of “group-level coping” among members of minority groups,[54] repeated and significant trauma more likely creates vulnerability in the form of negative health outcomes or risky behaviors.[29]

People who are transgender or gender non-conforming routinely encounter negative healthcare experiences, including discrimination, microaggressions, hostility, abuse, and knowledge gaps.[55–60] Gender minorities delay or avoid health care because of concerns about practitioner behavior, affordability due to socioeconomic status or insurance coverage, and potential negative outcomes of hormonal therapy.[61–63] They are reluctant to disclose their gender identity, and health facilities are ill-equipped to accurately collect their identity data.[63]

Sexual and gender societal norms can problematically impact health education and health research.[25] Societal homophobia and transphobia are not unlearned through healthcare education when it is taught through biomedical or biopsychosocial positivist approaches that silence or limit consideration of the social constructs of gender and sexuality.[25,64] Das Gupta et al.[65] argue that health education must be informed by a social justice lens to avoid commonly occurring harmful practices such as service providers deciding whether patients will obtain access to gender-affirming care.[66–68]

Health research can further obfuscate the mindset of healthcare providers. For example, there is limited research about two-spirit Indigenous health, and the destruction and distortion of records by priests, missionaries, and researchers have skewed some research findings.[49] The research-based classification systems of the American Psychiatric Association's "Diagnostic and Statistical Manual of Mental Disorders" (DSM) and the World Health Organization's (WHO) "International Classification of Disease" (ICD) may also impact health provider attitudes.[25] Homosexuality was classified as a mental illness by the DSM until 1973,[69] and gender diversity did not appear in the ICD until 1975.[70] Currently, gender diversity is classified as "gender dysphoria" by DSM-5 and "gender identity disorder" by ICD-10. In 2022, ICD-11 will adopt the term "gender incongruence" and move it from the "Mental and Behavioural Disorders" chapter to "Conditions Related to Sexual Health."[25] Proponents of current DSM and ICD classifications argue that they minimize stigma, acknowledge psychological stress, and support access to care, including gender-affirming modalities, whereas detractors maintain that gender diversity in and of itself is not a pathology requiring classification.[25]

Transgender individuals experience harm via government-issued documents, lab work orders, patient records, and coding and billing systems that are founded in hetero- and cis-normative assumptions.[71] Identity documentation should first determine the patient's gender identity, name, and pronouns — which are most important to the patient — and then determine assigned sex and name at birth — which may impact assessment decisions.[71] Clinic staff should accept government-issued documentation as presented and not make assumptions when the documentation differs from the patient's stated identity.[71]

The increased use and implementation of electronic medical records (EMRs) can constrain or enable gender-affirming care. The World Professional Association for Transgender Health EMR Working Group provides several recommendations.[71] There should be an optional field for recording preferred name, gender identity, and pronouns that is separate from the field containing assigned sex and name, needed for billing. Gender identity and pronoun options should be flexible to accommodate changing patient preferences and evolving gender minority taxonomies. The system must be able to flag differences between assigned and preferred identity at the right time for each EMR end-user. Additionally, EMRs must support an updatable anatomy inventory and gender-affirming medical care record (e.g., surgery, hormones) that can auto-populate appropriate workup templates. This information must be decoupled from gender and sex identity fields. Tuite et al.[72] also note that the pedigree nomenclature used in some patient records needs updating to represent patients who are gender non-conforming or born with DSD.

Health impacts

Discrimination, stigmatization, rejection, and internalized homophobia and transphobia trigger physiologic responses (e.g., activating the hypothalamic–pituitary–adrenal axis) that contribute to a higher prevalence of internalizing disorders like depression and anxiety as well as externalizing disorders

such as substance abuse, self harm, and suicidal ideation and behavior.[38,53,73,74] Encouragingly, competent care can reduce the occurrence of mental illness. For example, similar depression rates among cisgender children and gender minority children experiencing gender transition social supports suggest these supports can offset typically higher depression rates among gender minorities.[75]

Compared with heterosexual peers, LGB adults have higher risks of asthma and cardiovascular disease, bisexual individuals have double the smoking rate, and gay men experience disproportionally higher rates of human immunodeficiency virus (HIV) and other sexually transmitted infections (STIs).[76]

Transgender people, particularly trans women, face disproportionately higher rates of systemic disease compared with cisgender peers.[63] Trans women experience significantly higher rates of HIV and other STIs. If they have pursued gender-affirming hormonal therapy (i.e., estrogens and anti-androgens), they also have higher rates of vascular disease (e.g., venous thrombosis, myocardial infarction, type 2 diabetes, cerebrovascular disease), osteoporosis, and autoimmune disease (e.g., systemic lupus erythematosus and autoimmune hepatitis).[63] The latter may be tied to elevated C-reactive protein.[77] Thus, a key gender-affirming step of many transgender people — hormonal therapy — may support their mental well-being yet work against some aspects of their physical well-being.

Long-term gender-affirming hormone therapy in trans women may be linked to a higher risk of neuro-ophthalmic disease according to case reports of bilateral non-arteritic anterior ischemic neuropathy and post-surgical cerebral venous sinus thrombosis.[78,79] Hollar et al.[63] argue that transgender people may be more likely to experience progressive glaucomatous optic neuropathy, diabetic neuropathy, and reduced retinal ganglion cell survival after traumatic optic neuropathy. They suggest that brain-derived neurotrophic factor may play a role and that trans women may more likely be missing this neuroprotective factor.

The increased prevalence of osteoporosis among transgender women taking gender-affirming hormones may elevate their risk of inflammatory conditions of the eye and ocular adnexa (e.g., uveitis, episcleritis/scleritis, optic neuropathy, orbital inflammation).[63] Gender-affirming hormone therapy for transgender men may cause idiopathic intracranial hypertension, leading to papilledema and ocular motor dysfunction.

A significantly higher prevalence of HIV infection and increased risk of type 2 diabetes and thromboembolic events among trans women means that eyecare practitioners should consider the greater likelihood of HIV retinopathy, CMV retinitis, other opportunistic retinal infections, diabetic retinopathy, and retinal occlusive disease.[63] Higher smoking rates among this community may exacerbate the risk of these retinopathies.[80]

Gender-affirming hormone therapy may improve (testosterone) or worsen (estrogen) ocular surface disease.[81] Optometrists need to also understand that gender-affirming surgery for some individuals includes facial surgical procedures such as eyebrow lifting and hairline lowering that may impact ocular functions.[63]

These health impacts complicated by notable health disparities necessitate developing a set of competencies for optometrists that considers the diversity of the 2SLGBTQ+ communities.

Competencies for a 2SLGBTQ+ Inclusive Optometry Curriculum

The AAMC “Resource for Medical Educators”[29] has created the only comprehensive set of competencies that addresses the care needs of 2SLGBTQ+ communities. Included with each of the 30 AAMC competency objectives are examples of demonstrating the competency and educational modalities that may help students meet the competency. We adapted the AAMC competencies[29] for optometric practice

using a consensus building approach, which started with a version created by one of us (MMS). Modifications were made through an iterative discussion among the three of us. A similar approach was taken to providing non-exhaustive examples of demonstrating competencies and education modalities. For the latter, we created unique examples that focused on one of four types of learning activities: case, discuss, skill, project.

We determined that all eight AAMC competency domains applied to optometrists. At the specific competency objective level, differences in practice scope triggered some changes. Of the six “patient care” domain competencies, two were altered and one was eliminated. In addition, one of the six “system-based practice” domain competencies was eliminated.

Tables 1 to 8 show the adapted AAMC competencies and related examples across 8 competency objectives: knowledge for practice **(Table 1)**, patient care **(Table 2)**, practice-based learning and improvement **(Table 3)**, interpersonal and communication skills **(Table 4)**, professionalism **(Table 5)**, systems-based practice **(Table 6)**, interprofessional collaboration **(Table 7)**, and personal and professional development **(Table 8)**. For brevity, we did not explicitly identify the patient cohort in each cell unless it pertained to a subset of the 2SLGBTQ+ communities. In doing this work, we recognized the inter-relatedness of aspects of the eight competencies. For example, certain knowledge for practice (Table 1) is required to provide competent patient care (Table 2), which might include specific interpersonal and communication skills (Table 4). The eight competencies and related examples may help optometric educators consider ways to adapt their curricula as needed.

Table 1. Click to enlarge

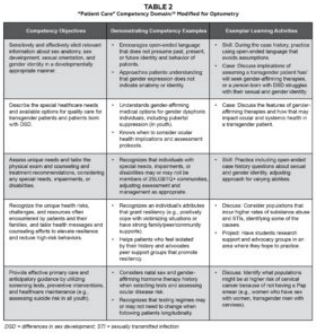
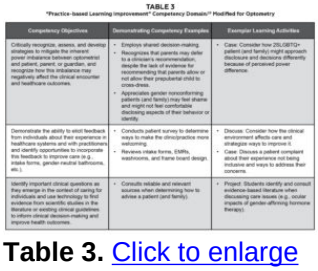


Table 2. Click to enlarge



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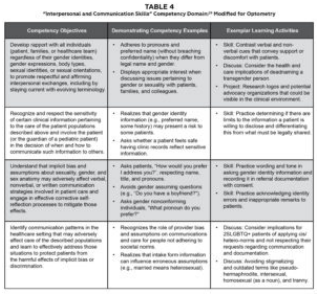

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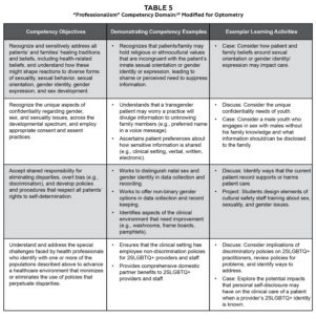

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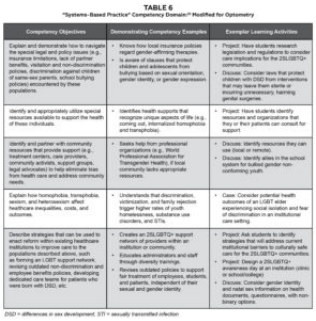

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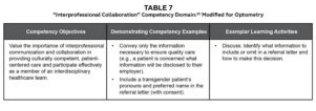

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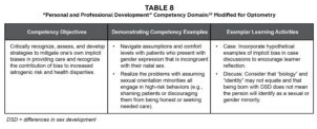

Table 8. Click to enlarge

Planning for Curricular Change

Integrating competencies that support culturally safe optometric care of patients requires individual, institutional, and system changes. Curtis et al.[82] problematize health practitioners and organizations who aim for cultural competence, which has been historically limited to cultural knowledge acquisition by individuals. Instead, cultural safety requires health practitioners, and related organizations and systems, to examine the “potential impact of their own culture on clinical interactions and healthcare service delivery” via ongoing critical consciousness, self-reflection, and accountability.[82]

While outside the scope of this article on training clinical novices, training for optometric staff and continuing education for optometrists is also needed. Optometric educators and administrators can benefit from guidelines created by other health educators and organizations (e.g., AAMC,[83] Egale Canada,[84] Gay & Lesbian Medical Association,[85] National LGBT Health Education Center,[86] The Fenway Institute[87]). These can be adjusted, where needed, for differences in professional identity, jurisdictional scope of practice, and educational accreditation standards. This work will help optometric educators meet evolving ACOE standards.

Before considering curricular and pedagogical matters, care must be taken to create an institutional climate that supports safety and openness regarding discussions, teaching, learning, and research. Compared with their peers, health students identifying as 2SLGBTQ+ experience increased social isolation and stress, decreased social support, and a degraded emotional environment because of discrimination and bias.[29] Attention to creating safe spaces for 2SLGBTQ+ instructors, staff, and students must precede the creation of safe spaces for 2SLGBTQ+ patient care. Evolving a positive climate occurs through institutional engagement (e.g., recruitment, admissions, hiring practices, continuing education, resource centers), inclusive policies and practices (e.g., student and employee orientation, discrimination policies), diversity support (e.g., pride event recognition, employee and resource center support lists), community outreach and engagement (e.g., community partnerships, event hosting), and supportive technologies (e.g., digital presence, culturally sensitive data collection).[29]

Energy should also be expended to identify and consider potential barriers to creating and delivering 2SLGBTQ+ health curricula. Barriers may include instructor discomfort or unpreparedness to address content; difficulty differentiating core from elective topics, especially in the presence of an already packed curriculum; and student discomfort or unwillingness to engage with topics due to religious, political, or personal beliefs.[8,29]

In addition to ensuring that educators can competently manage relevant curricular content, Carter et al.[88] call upon educators to create what Little and Stubbs have called “a brave space” for educational conversations where bias and phobias exist. Constructive educator strategies include conducting a self-assessment of privilege, bias, prejudice, and stereotype, identifying and challenging system level, historical institutional inequities, role-modeling openness and a willingness to listen, and demonstrating empathy and cultural humility.[88] Recognizing that some students may espouse values that could hinder the quality of 2SLGBTQ+ care, educators still need to set clinical competencies to manage diverse student populations.[8]

In creating 2SLGBTQ+ health curricula, recommended practices call for curricular co-creation that involves 2SLGBTQ+ faculty, staff, students, and patients, scaffolded design, interprofessional opportunities where possible, and competency-based learning objectives.[8,29] A curricular mapping process can help identify 2SLGBTQ+ health gaps in current curricula.[8] In addition to improving basic knowledge and facilitating clinical preparedness, curricular design needs to enable attitudinal awareness through cultivating values, exploring self-awareness of privilege and bias, and enhancing communication skills.[29] Thus, pedagogical approaches that support deep learning, self-awareness, and critical-thinking will be most effective. Towards this end, recommended health profession 2SLGBTQ+ learning activities include self-reflections, group discussions, role plays, standardized patients, and interactions with people who identify as 2SLGBTQ+.[5,89] Noonan et al.[5] report that standardized patients who identify with the gender they portray are more effective because their lived experiences allow them to authentically play the role and provide constructive feedback to the learner in a safe learning environment. Team-based learning or flipped classrooms that support facilitated class discussions and objective structured clinical examinations that provide a safe environment for demonstrating clinical skills are also advocated pedagogical strategies.[5,8] As with all learning environments, learning objectives should be articulated and aligned with learning activities and assessments.[90]

Conclusion

We have identified a potential gap in optometric education, provided a justification for why it should be addressed, and proposed a set of competencies to help optometric educators review their curricula for any problematic or absent content. A broader discussion and potential modification of these competencies may be warranted for the benefit of training optometry students to provide culturally safe care that considers the unique needs and priorities of patients who identify with the 2SLGBTQ+ communities.

Thus far, the literature about teaching 2SLGBTQ+ patient care has occurred in health settings outside optometry. While this emerging knowledge may translate reasonably well, we encourage research situated in optometry settings to unpack unique elements of optometry's professional and educational environments. Some clinicians will have limited formal training in the unique and varied care needs of these diverse communities and many more clinicians will lack formal training in teaching specific associated communication skills. Thus, optometry schools and colleges can help students provide culturally safe care to members of 2SLGBTQ+ communities if they offer faculty/clinician training that addresses healthcare needs, critical consciousness, and teaching strategies.

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Features

Educator's Podium

VOSH/International and the Development of Optometry in the Latin American Region

Emiliano Teran, PhD | *Optometric Education: Volume 48 Number 1 (Fall 2022)*

Emiliano Teran, PhD

Volunteer Optometric Services to Humanity (VOSH)/International is an organization devoted to providing vision care around the world through humanitarian clinics.[1] For its commitment to providing access to quality eye care in underserved communities, VOSH/International received the 2022 Jenny Pomeroy Award for Excellence in Vision and Public Health from Prevent Blindness.[2]

Volunteers, who include optometrists, ophthalmologists and lay people, organize and work in the clinics. Their efforts allow thousands of people, as many as 5,000 per week, to be evaluated and receive treatment for vision impairments. Optometry students who are members of Student Volunteer Optometric Services to Humanity (SVOSH) chapters at their optometry schools in the United States and many other countries are also among the clinic volunteers who help to provide care. (The process for opening a student chapter at your school is not difficult. Email VOSH/International Executive Director Maria Arce Moreira for more information.) In addition to their philanthropic aspect, the clinics are great opportunities for students to improve their clinical skills, gain exposure to diverse patient populations and observe vision conditions they may not see in their home settings.

Partner organizations may also be part of VOSH/International clinics. In my experience as an academic advisor to the SVOSH Autonomous University of Sinaloa (UAS) chapter in Mexico[3] and a member of the VOSH/International Latin American Advisory Committee, strategic alliances with local optometry schools and other organizations increase the success of the clinics. For instance, in our most recent local humanitarian clinics we worked with the local Lions Club, who helped us to bring food bags to the participating families.[4]

Latin American communities have received strong support from VOSH/International through the humanitarian clinics. Here, I highlight other VOSH initiatives that have benefited this region as well as more the organization is developing. These include efforts to enhance the optometric profession's level of education and increase the number and quality of vision science research opportunities. Also, I suggest how optometry students in the United States could further help people around the world while

improving their own skills.

Many Avenues of Support

Strategic alliances

VOSH/International continues to establish strategic alliances with organizations in Latin America to enhance its support. One of the most fruitful has been with the Latin American Association of Optometry and Optics (ALDOO in Spanish), where students and optometric faculty are comitted to improving optometry in the region.

International student chapters

A VOSH/International pilot program aims to support international SVOSH chapters by providing scholarships of $1,500 as a resource for enhancing their activities. Although this may not seem like a large amount, it is a huge help. For example, our UAS student chapter received this aid in 2019 and 2022. It helped us to publish the results of our research in 2020 and to move forward with our programs in 2022.[5,6] I hope this pilot program can be replicated to help more chapters around the world.

Regionally focused committee

To address the specific needs of the region, VOSH/International created the Latin American Advisory Committee. I am an active member of the committee along with Beatriz Serna, OD, from Mexico, Jairo Mercado, OD, from Nicaragua, and Severo Sanchez, MSc, from Peru. We promote ideas for enhancing regional development in the profession of optometry and eye care and are working hard to promote ideas for elevating optometry in Latin America. We believe expanding alliances with other organizations, such as ALDOO and the World Council of Optometry (WCO) would help us to achieve our goals.

Research

In 2019, VOSH/International obtained a grant from the One Sight Essilor Luxottica Foundation to study refractive error in children in Latin America. This assistance has had a positive effect on research by improving optometry students' skills and informing governments on the prevalence of refractive error. Moreover, it enabled children from vulnerable zones of the city to receive vision care.

To further promote optometric research in the Latin American region, VOSH/International created a scientific committee. Sandra Block, OD, MEd, MPH, FAAO, FCOVD, FNAP, President of the WCO, Bruce Moore, OD, Professor Emeritus from New England College of Optometry, and Hector Santiago, OD, PhD, Vice President of VOSH/International are the committee members. This committee is helping to develop research in the region. Currently they are helping to develop a project in hyperopia and learning performance. In addition, they helped to improve the implementation of the project that evaluated the prevalence of refractive errors in children in the Latin American region. Our UAS SVOSH chapter learns from them to develop our research projects. The goal of the scientific committee is to create more advisor groups to other faculties and students from Latin America.

The creation of this research-focused committee is a good opportunity for optometry faculty and students from the United States and researchers from Latin America to work together for mutual benefit. For instance, U.S. faculty and researchers in vision science can help researchers and optometry students in Latin America with study design, results analyses and manuscript writing, while the Latin American teams collect data.

Education

For many years VOSH/International has been supporting optometry in the Latin American region with lectures on optometry and vision care. VOSH has a short-term mentorship program called the Ambassador Program in which an optometrist from the United States visits schools in Latin America to teach. Another VOSH program, VOSH Corps, provides a longer-term teacher and mentor. One of the beneficiaries of VOSH Corps was the optometry program in Nicaragua, where they used help from VOSH to establish a successful optometry school in the National Autonomous University of Nicaragua. Also, VOSH/International Immediate Past President J. Dan Twelker, OD, PhD, FVI, visited Puerto Principe, Haiti, to provide lectures at the brand new optometry school.[7] These are only two of the many lecture programs presented at schools and events in Latin America.

VOSH/International also shares the expertise of its members through talks to the student chapters. Recently, President Michael Ciszek, OD, diplomate ABO, FVI, presented a talk to the annual meeting of the Mexican Association of Faculty, Schools, Colleges and Councils of Optometry in Torreon, Coahuila, Mexico.[8] In this meeting Dr. Ciszek outlined the benefits of being a member of VOSH/International and reported the achievements of its chapters and student chapters.

Many workshops to improve the skills of optometrists in the region have been carried out as well. For instance, in 2018 the UAS SVOSH chapter organized a workshop focused on research. In this workshop, Dr. Twelker shared his expertise in writing manuscripts. Likewise, he presented a workshop about improving refraction procedures for the students of the optometry program. Last year, VOSH/International and the UAS SVOSH chapter presented a workshop about writing scientific manuscripts in English, which was co-organized by Alcanza Language Consultants.[9] This workshop was a great experience for the optometry students and graduated optometrists interested in research who attended from many countries in Latin America.

Strengthening Student Collaboration

I believe SVOSH members in the United States and Latin America have much they can share with each other, too. U.S. students could make a significant difference by sharing their knowledge and experience with their peers in Latin America. One opportunity might be for students from U.S. SVOSH chapters to give talks for international chapters via a video conferencing platform. It would be interesting to build more solid bridges between students from the United States and Latin America, where the purpose to provide primary vision health to people is the same, but the scenarios are very different.

Forging Ahead

As it has for many organizations, the COVID-19 pandemic reduced VOSH/International's resources. However, the group is well-organized, has a strong commitment to assisting others, and is developing smart strategies to maximize resources in Latin America. It has been a great start, and potential for the future is even greater.

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Editorial

Student Academic Entitlement

Aurora Denial, OD, FAAO, DAAO (OE) | *Optometric Education: Volume 48 Number 1 (Fall 2022)*

Aurora Denial, OD, FAAO, DAAO (OE)

How often have we had a student ask that a grade close to a cutoff be bumped up, request the rescheduling of an exam or quiz for personal events (non-medical or non-emergency) or request that personal effort be taken into consideration when grading? Who has not experienced an attitude from some students that attending class, turning in homework and completing reading assignments should dictate at least a passing grade, independent of quality of the work?

When Greenberger et al. surveyed 466 undergraduate students in 2008, they found that 66% of them agreed “If I have explained to my professor that I am trying hard, I think he/she should give me some consideration with respect to my course grade”; 41% agreed “If I have completed most of the reading for a class, I deserve a B in that course”; 34% agreed “If I have attended most classes for a course, I deserve at least a grade of B”; 31% agreed “Teachers often give me lower grades than I deserve on paper assignments”; and 30% agreed “Professors who won’t let me take an exam at a different time because of my personal plans(e.g. a vacation or other trip that is important to me) are too strict.”[1]

Student academic entitlement can be frustrating and emotionally draining for faculty. It takes time and energy away from teaching. Also, college and university administrators can play a significant role in supporting faculty or propagating student behavior.

A recent article published by The New York Times reported that a respected organic chemistry professor at New York University (NYU) was dismissed after 82 of his 350 students signed a petition against him.[2] The petition stated, “We are very concerned about our scores, and find that they are not an accurate reflection of the time and effort put into this class,” and “We urge you to realize that a class with such a high percentage of withdrawals and low grades has failed to make students’ learning and well-being a priority and reflects poorly on the chemistry department as well as the institution as a whole.”[2] The professor had previously taught organic chemistry at an Ivy League university for many years, written a text book on the subject and created new learning modalities that focused on problem-solving rather than memorization. Many students supported the professor and found him very likable. The university cited poor course evaluations for the professor and complaints about his tone as condescending and demanding as support for the firing. However, the professor taught at NYU for longer than a decade until

the petition surfaced. What message does the NYU decision send to students and junior or adjunct faculty?

Student entitlement can be defined as a “tendency to possess an expectation of academic success without taking personal responsibility for achieving that success.”[3] Researches have often viewed entitlement as a component of narcissism.[4] Entitlement includes the concept of the world or society owing the individual something, meeting wants immediately and the bending or dismissal of rules.[5,6] Entitlement has often been linked to customer-business or citizen-government models.[7] These models lead to the student as a consumer and the grade or degree as a product that can be purchased rather than earned.[7] End-of-course student evaluations often empower entitled students. These evaluations can often impact junior faculty, non-tenured faculty or adjunct faculty.

As a faculty member, I recognize that most of our students are hard workers who want to learn and master course material. They are conscientious and caring student clinicians who take responsibility for patient care very seriously. These students understand the concept of lifelong learning and the ethical responsibility of a healthcare provider to stay current with medical or optometric knowledge. However, it is hard to ignore the growing number of academically entitled students who seem to be oblivious to the harm that can come from this mindset and behavior. In my experience, over the years, student academic entitlement has grown. Students with entitlement characteristics have become more vocal and active. How can faculty respond?

The Syllabus[8]

Present clear expectations and guidelines in the syllabus and do not waiver from syllabus content. The syllabus is a powerful tool that sets the goals and expectations for the course. It contains material that outlines the course goals, objectives, topical areas, schedules and, most importantly, the rules for success in the course. This may include rules on grading, curving scores, consequence of late assignments, borderline grades, the use of make-up or extra credit assignments and classroom etiquette (use of cell phones, tardiness, attendance, use of electronic devices in class). Developing a student entitlement-proof syllabus requires the exquisite anticipation of all prospective scenarios. I am still amazed at the number of students who approach me with “I know what it says in the syllabus, but can I have (fill in the blank).” Wavering from the syllabus opens a Pandora’s box and there is no turning back. It can set a precedent and make it difficult for other faculty to strictly adhere to their course syllabus. Faculty who adhere to the syllabus may then be perceived as too strict and not flexible. Students who are following the syllabus may perceive the wavering as unfair. Extenuating circumstances may require flexibility, but this should be rare and on an individual basis. Not wavering from the syllabus is essential but challenging to execute.[1]

Open Discussion[3]

Engaging students in an open discussion about entitlement may also be useful. Students who have grown up in a culture of entitlement may not realize the detrimental effects it can have on learning. There may be a disconnect between a student’s past experiences and current expectations. Extra-credit assignments, curving exam scores, retaking exams and giving credit for effort not results can lead to grade inflation. The achieving of a higher grade than what is actually earned devalues the course grade, a degree and potentially compromises the integrity of a program.[1] Additionally, it’s not fair to the students who actually learned the course material.

Administrative Support

Administrative support is essential. Department chairs, academic deans, presidents and provosts need to support faculty. The administration is often in a difficult position. Administration as well as faculty want

students to have a positive experience and look back favorably on the institution. This can impact future applicants, who may rely on student blogs, reviews or social media as well as alumni support. However, propagating student entitlement is a disservice to the institution, students and the profession. As institutions, we have an ethical responsibility to graduate students who have mastered a required curriculum.

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Announcement

Winning Essay: Student Award in Clinical Ethics

Andrea Meagher, OD | Optometric Education: Volume 48 Number 1 (Fall 2022)

Andrea Meagher, OD, is the 2022 recipient of the Student Award in Clinical Ethics. Her winning essay appears here.

Caring for Patients with Disabilities: Advocating for Those Who Cannot Advocate for Themselves

Andrea Meagher, OD

As optometrists, most of us have at one time provided care to a patient with a developmental disability. Individuals with disabilities often experience discrimination in health care.[1] There is also a lack of optometric education and research in the area of patients with developmental disabilities.[2] This case study involving a patient with Down syndrome and keratoconus helps bring to light the positive impact optometrists can have on this population through not only ethical treatment and management, but also advocating for their well-being.

Andrea Meagher, OD

Current clinical guidelines for management of keratoconus are based on whether patients are satisfied with their vision in glasses.[3] This begs the question: What if a patient is unable to express that satisfaction, or lack thereof? How can a clinician decide whether patients are satisfied with their current vision if they cannot communicate such and have never had the opportunity to see the world clearly?

Patient Assessment

A 31-year-old female reported to the Cornea and Contact Lens department at Illinois Eye Institute for physician-directed follow-up for keratoconus. She had first been diagnosed with keratoconus in the Developmental Disabilities clinic at Illinois Eye Institute 2 weeks prior. She had undergone comprehensive eye exams at outside practices at least every 2 years since birth with normal results aside from refractive error. The patient's medical history was positive for Down syndrome and obesity. She was somewhat verbal, but spoke only Spanish. Her sister was present to translate during our exam. The patient had a positive family history of keratoconus. Her mother was the primary caretaker but her sister lived close by and was with her most days. Although the patient had been prescribed numerous pairs of glasses since age 5, she had never worn them successfully due to not liking the feeling of the frame on her face.

Her previous visual acuities were documented as "fixate and follow," but the patient was found to be very adept at Lea matching during her exam in the Cornea and Contact Lens department. She achieved a distance visual acuity of 20/200 in the right eye, 20/300 in the left eye, and 20/125 with both eyes through her glasses prescription. Her near acuity was measured as 20/40 in each eye, which indicated that she was likely not highly amblyopic. Pupil testing and extraocular motility testing were normal. Confrontation visual fields were unable to be tested due to patient understanding and poor fixation. Retinoscopy revealed a prescription similar to her previous glasses of -9.00 -2.00 x 028 in the right eye and -9.00 -4.50 x 160 in the left eye. A corneal tomography was obtained, although quality was slightly reduced due to poor fixation. It revealed keratometry readings of 58.40/60.60@099 in the right eye and 72.20/78.90@073 in the left eye with a minimum pachymetry thickness of 302 µm in the right eye and 155 µm in the left eye. The tomography also showed apical stromal corneal thinning consistent with keratoconus in both eyes. Slit lamp examination revealed mild central corneal scarring in the right eye and significant central corneal scarring in the left eye with a significant Munson sign upon down gaze in both eyes. The bulbar conjunctiva was slightly diffusely injected in both eyes. Upon instillation of sodium fluorescein there was a band of 1+ punctate epithelial erosion in the left eye with a question of incomplete lid closure/lagophthalmos. All other slit lamp findings were normal. The patient had her pupils dilated at her exam 2 weeks prior, and the posterior pole examination was found to be within normal limits with cup-to-disc ratios of 0.30/0.30 in both eyes.

Current clinical guidelines indicate that first-line treatment for keratoconus should be corneal crosslinking for those who are eligible.[3] Due to the patient's minimum corneal thickness of less than 400 µm and the central scarring present in both eyes, she was not an ideal candidate for corneal crosslinking.[3] The next line of treatment is specialty contact lenses.[3] Corneal transplant surgery is recommended only if contact lenses still cannot achieve adequate vision.[3] Despite more than 25 years of eye care and known high ametropia, the patient had never been offered the correction option of contact lenses to improve her vision and comfort. Had she not been developmentally delayed, one can suspect she would have been given the option of contact lenses much sooner.

Patience Leads to Progress

The American Optometric Association (AOA) Standards of Professional Conduct support that we have an ethical obligation to provide this patient with the option of contact lenses with the following statement: "Optometrists have a duty to inform patients or their legal guardian about the patient's health care and health care options."[4] This patient is not the only disabled patient who has been overlooked in this way. The prevalence of keratoconus in people with Down syndrome is higher than in the general population, but many patients go undiagnosed due to difficulty in providing care.[5] Sadly, patients with developmental disabilities are not being provided the same level of health care as other patients.[6] This is a violation of AOA's Code of Ethics tenet "to strive to ensure that all persons have access to eye, vision, and general health care" ? not just those persons who are able to express their desire for functional vision.[7]

At this patient's first visit to the Cornea and Contact Lens department, we educated her accompanying

guardians on her condition and management options. The guardians agreed to help the patient with application and removal of the lenses and to proceed with the contact lens fitting in hopes of achieving better vision and comfort than her habitual spectacles provided. We were able to apply a hybrid lens to her right eye (on the first attempt!) and the patient reported good overall comfort. We then attempted to apply a hybrid lens to the more severe left eye but encountered much greater difficulty. After repeated attempts, the patient became overwhelmed. We were unable to achieve an accurate visual acuity or fit evaluation of the lens, so it was removed and she was asked to return at the next available appointment to continue the fitting.

At her next fitting appointment 3 weeks later, the patient expressed her initial apprehension with the contact lens fitting process. With some time, reassurance and review of the process, she agreed to proceed with the fitting. Throughout this appointment she grew more and more comfortable with me and the lenses, and we were able to successfully apply and evaluate two hybrid lenses on the right eye and three hybrid lenses on the left eye. We adapted the fitting process to her specific needs: warming the preservative-free saline vials to reduce the blink reflex, providing a dental bib to catch any spills, and moving slowly with the utmost patience. The patient achieved best-corrected distance vision of 20/40 in the right eye and 20/30 in the left eye with over-refraction, a drastic improvement from 20/125 in her glasses! She expressed comfort with the lenses and amazement in her vision improvement that was truly heartwarming. Although we achieved an appropriate fit in the right eye, her left eye exhibited central touch with even the highest possible hybrid lens vault. For this reason, the patient was scheduled to return for an additional fitting appointment for scleral lenses. The hope is that she will be more cooperative with insertion of these larger gas permeable lenses after having had a positive experience with the hybrid lenses.

Fulfilling Our Responsibility as Optometrists

Down syndrome is not uncommon. It occurs in 1 of every 700 babies born in the United States.[8] Furthermore, the number of patients with Down syndrome is increasing due to increasing maternal age along with medical advances in technology resulting in better survival rates for these children.[9] It is our responsibility as optometrists to understand how to properly treat and manage the unique visual needs of this population. Although this patient was able to respond to Lea matching, most patients with Down syndrome respond best to Teller Acuity Cards.[9] In addition to keratoconus, blepharitis, premature cataract and strabismus are common in Down syndrome patients.[9]

Patients with Down syndrome and other disabilities who present with high ametropia, including high amounts of cylinder and a “scissor” reflex on retinoscopy, should be screened for keratoconus with corneal tomography. Careful slit lamp examination can also help identify signs of keratoconus including Munson sign, corneal scarring, Fleischer ring, Vogt striae and apical thinning. Early detection leads to better outcomes in these patients, especially if corneal crosslinking can slow the progression of the disease.[3]

Patients with disabilities deserve the same level of care as the rest of the population, and it is our ethical obligation as clinicians to provide such care. We should all be healthcare advocates for patients who cannot advocate for themselves.

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Special Report

Results and Action Plans from an Optometric Education Global Summit

Melissa A. Vitek, OD, FAAO, PNAP, and Timothy A. Wingert, FAAO, Dipl | Optometric Education: Volume 48 Number 1 (Fall 2022)

Summary

In October 2019, the Association of Schools and Colleges of Optometry, the American Academy of Optometry and the World Council of Optometry designed and hosted a Global Optometric Education Summit. The summit included optometrists from around the world and achieved its goal: to promote understanding and open lines of communication between optometric education programs around the world to develop opportunities for advancing optometric education globally. The substance of discussions and action plans that emerged are reported here and revealed that many of the issues and opportunities facing optometric education are shared by institutions around the world.

Thank you to all of the dedicated optometric educators who contributed to the planning and execution of the Global Optometric Education Summit: Barbara Caffery, Elizabeth Hoppe, Scott Mundle, Glen Steele, Hector Santiago, Luigi Bilotto, Ariela Gordon-Shaag, Daniel Taylor, John Nishimoto, Peter Hendicott, Pete Haydon, Suit May Ho, and Nick Rumney.

Background

The optometric profession is practiced differently across the world. While the shared goal is to provide patients with excellent vision and eye health, the level of training and scope of practice vary from country to country. Over time, numerous articles have been written to convey the conditions in different regions, aspirations for the future and hurdles to overcome.[1-13] Conversations aimed at strengthening cooperation between and among countries and programs have occurred for nearly 40 years.[1] During that time, several conferences have been conducted involving different organizations addressing various topics in optometric education.

Figure 1. At the Global Optometric Education Summit, participants were seated so that each table included at least one participant from each of the World Council of Optometry representative regions. After a panel of optometric leaders from around the globe provided content relative to each of the goals, the participants discussed each topic within their groups. Each of the 12 groups identified challenges and opportunities that emerged from their respective discussions. The groups reported out to the larger group and submitted a written summary of their conclusions. At the conclusion of the summit, the comments from each group were collected. Click to enlarge

The most recent was held on Oct. 27, 2019, when three organizations, the Association of Schools and Colleges of Optometry (ASCO), the American Academy of Optometry (AAO) and the World Council of Optometry (WCO) designed and hosted a Global Optometric Education Summit during the joint AAO/WCO meeting. This summit brought together optometrists with three goals: to assemble representatives from optometric academic institutions around the world and identify issues facing optometric education globally; to share current best practices in optometric education; and to share ideas on future developments in optometric education. The three goals were linked to key objectives that were defined for the participants: share geographically specific challenges facing optometric education; identify synergies in addressing the challenges facing optometric education; share outcome measures for program effectiveness; explore solutions for deficiencies in and/or threats to resources; communicate techniques and strategies for faculty recruitment, development and retention; identify and share effective tools to assess student learning; and explore future trends in the optometric profession and how institutions will prepare for important changes.

The participants were seated so that each table included at least one participant from each of the WCO representative regions. Following a panel of optometric leaders from around the globe providing content relative to each of the goals, the participants discussed each topic within their groups. Each of the 12 groups identified challenges and opportunities that emerged from their respective discussions. The groups reported out to the larger group and submitted a written summary of their conclusions **(Figure 1)**. At the conclusion of the summit, the comments from each group were collected.

During the process of synthesizing the collected data, several common themes, concerns and potential solutions arose. The challenges and opportunities for each goal are summarized below.

Goal 1: Assemble representatives from optometric academic institutions around the world and identify issues facing optometric education globally

Objectives

- Share area-specific challenges facing optometric education
- Identify synergies in addressing the challenges facing optometric education

Goal 1 challenges

<u>Curriculum, faculty and leadership</u>

The following curricular, faculty and leadership challenges for Goal 1 were identified by each table in varying capacities:

- academic leadership development
- access to master’s level training
- faculty and staff development
- need for curriculum benchmarking
- resistance to change/innovation

The need for academic leadership development was shared by all geographical regions as the profession does not have a widely recognized and/or standardized approach to identifying and cultivating future thought leaders. A unified approach to this could assist in effectively achieving many of the goals discussed during the summit. Similarly, the concept of mutually beneficial mentorship relationships was explored. Also germane to this discussion was access to master’s degree training. For institutions outside of the United States, this type of training signifies advanced clinical and/or research skills and is also a pathway into faculty positions and academic leadership. Interconnected to leadership development, faculty and staff development was described as a challenge due to varying skill sets

among both faculty and staff in addition to varying levels of motivation. Furthermore, teaching and assessment models are constantly evolving. Finally, the emergence of new content areas, such as telehealth, were considered. These areas will present a gap in faculty skillsets that will need to be addressed. While a systematic approach to offer leadership, faculty and staff growth and mobility was championed, resources to fully support these types of initiatives are needed.

TABLE 1
Summary of Goal 1 Challenges and Opportunities

Curriculum, Faculty and Leadership	Students	Optometric Profession
Challenges • Academic leadership development • Access to master's level training • Faculty and staff development • Need for curriculum benchmarking • Resistance to change/ innovation	**Challenges** • Student recruitment • Public awareness of profession • Growing class sizes outpacing resources • Developing students to become faculty • Student apathy	**Challenges** • Social-political barriers/regional conflicts • Language barriers • Cultural competency • Scope of practice • School recognition
Opportunities • Faculty training • Technology implementation in education	**Opportunities** • More emphasis on soft skills in student recruitment and training • Increased focus on critical-thinking skills	**Opportunities** • Support from World Council of Optometry, Association of Schools and Colleges of Optometry and administration at optometric institutions • Shared advocacy for the profession and education • Tiered levels of practice

Table 1. Click to enlarge

The topic of curriculum benchmarking linked to discussion on scope of practice, and ultimately patient outcomes was explored. If we are to further solidify the identity of our profession, we need to have a widely accepted mechanism by which to measure the impact our curricula have on patient-important outcomes. The WCO has done extensive work in this area and continues to serve as a valuable resource.[14] In addition to the high-level perspectives captured in this model, perhaps working groups aimed at sharing curricular highlights among partner institutions could lead to strengthened programs for all. Similarly, the pros of exploring curriculum gaps and emerging program needs with a unified approach was explored.

Resistance to change is human nature. There was significant dialogue regarding the need to innovate in terms of our chosen content topics, use of technology, pedagogical delivery model, etc., and the resistance that might arise from faculty, accreditation bodies and legislative entities. Effective professional development initiatives could serve as a pathway to mitigating some of that resistance and/or establishing mechanisms to move forward creatively within existing guardrails.

The topic of the need to support continued innovation broadened to encompass practitioners already in the field. Are they practicing to the fullest scope of the profession? If not, why? The following factors were brought forward as possible reasons:

- socio-political barriers, including resistance from ophthalmology (further need to align education with legislation)
- need to adopt and or integrate into an interprofessional practice delivery model
- do we have an appropriate level of flexibility as a profession? (continuing education needed to facilitate early adopters of effective technology)

The likelihood that developing countries may be more poised to be the early adaptors for some types of technological advancements was examined and agreed upon on for certain levels. For example, institutions that reside in regions where accrediting bodies don't have as much impact on program approaches have additional flexibility that can be utilized in this regard.

Students

The following student-related challenges for Goal 1 were revealed by each table:

- student recruitment
- public awareness of profession
- growing class sizes outpacing resources
- developing students to become faculty
- student apathy

Student recruitment was expressed as a current challenge for all. Creating an enduring pipeline for applicants that have a strong understanding of the profession was a topic of particular emphasis as it speaks to sustainability of the profession and, as a result, patient access to care. It was determined that we could work harder at reaching out to students in high school (or even younger) to educate them on the profession and the typical pathways taken to pursue a career in optometry. In some regions, such as North America, there were concerns as to the growing number of optometry schools while others noted a small and/or shrinking applicant pool.

A common conversation thread existed through all geographical regions on the need for increased awareness by the public in general as to what specific role an optometrist plays in health care. Regardless of geographical area, the representatives from each table concluded that many members of the general population simply don't have a solid concept of that role. The recent campaign by North American-based ASCO ? "Optometry Gives Me Life" ? targets prospective school applicants, but doesn't draw a direct connection to what is entailed in the services provided by an optometrist. More needs to be done about expanding the working knowledge of the unique value optometrists bring to a patient's healthcare team to fully address issues surrounding the profession's identify. Successful efforts to this end could serve to both shore up a well-informed applicant pipeline and appropriately elevate the status of the profession.

Of equal importance is the need to extrapolate this normalization of the knowledge of optometry's professional identify to creating a shared vision of where the profession is headed. Many at the summit agreed that we need to embrace evidence-based practice, interprofessional education and technological advancements to remain relevant and sustainable.

Another topic considered was the rising pressure to increase class size to maintain financial viability for programs. As class sizes grow, additional resources are required to meet diverse and expanding student needs, and securing quality candidates becomes more challenging. Due to a decreased tolerance for rising tuition costs, could partnering with industry help mitigate some of these pressures? Could online program offerings provide an opportunity for the reallocation of resources?

Faculty members are typically recruited through residency programs. There was deliberation on whether this approach should be expanded to recruit a more diverse group of faculty members. Should we be reaching into the community and engaging more adjunct faculty members to enrich the students' experience as well to combat decreases in resources? Perhaps grooming students who demonstrate potential as educators and/or leaders while they are still students could facilitate the development of a strong faculty and/or administrative pipeline?

Finally, growing student apathy was identified as a shared challenge among the various geographical regions. While the need to create lifelong learners was widely accepted, rich discussion centered on how to engage students at a higher level during their academic programs.

Optometric profession

The following profession-specific challenges for Goal 1 were illuminated by the representatives at each table:

- social-political barriers/regional conflicts
- language barriers
- cultural competency
- scope of practice
- school recognition

In addition to the shared challenges discussed above, some regions face ongoing disruption, and sometimes even violence, in their communities that present an additional layer of burden. Faculty and student recruitment, cultural competency (including language barriers) and professional advocacy all become more difficult yet essential in the impacted regions.

Discussions on school recognition were tied to broader deliberations on professional identity and student and faculty recruitment. The reality that some institutions and/or faculty members may be reticent to share granular details with partner institutions to maintain a competitive edge was addressed, but certainly not resolved.

Goal 1 opportunities

Along with the challenges considered for Goal 1, groups were also able to underscore opportunities that could be pursued.

Curriculum, faculty and leadership

The following faculty and administrative opportunities for Goal 1 were brought forth by each table:

- faculty training
- technology implementation in education

It was agreed that establishing and strengthening collaborations between institutions would be beneficial for many programs. Newer programs could learn from established programs, and established programs would be exposed to other ways of doing things that would reinforce what they have already incorporated at their home institution. This could also allow opportunities for interdisciplinary collaboration between optometry schools and other healthcare programs.

Other opportunities centered around training faculty and upgrading the training for optometrists who are already in practice. Often, faculty are recent graduates of the institution in which they now teach. Additional courses to train them beyond the level of that program would give them a greater depth of knowledge to impart to their students. This was something participants felt was very desirable. It was suggested that recently retired faculty from other institutions could be an asset for educators at newer institutions. The seasoned educators could serve as role models and mentors. Part of the concern in recruiting quality faculty was being able to provide a salary that would be competitive with that of a private practitioner. It was mentioned that some small specialty areas, for which a faculty member would be unaffordable, could perhaps be addressed through distance learning programs using experts from afar. This would allow a small topical area that could not sustain an entire faculty to be covered in the curriculum as part of another course without the expense of bringing in a guest lecturer. Concerns that were discussed relative to this had to do with copyright issues and accrediting body approval. While much was discussed about embracing technology and teaching and the use of apps to augment lessons, there is probably greater acceptance of this now as everyone has been teaching remotely for the past 2 years due to the pandemic.

Students

Corresponding to Goal 1, opportunities to recruit students better poised for the evolving demands of the

profession were identified as:

- more emphasis on soft skills in student recruitment and training
- increased focus on critical-thinking skills

Most groups hoped that embracing technology and the use of apps in teaching the science would allow for emphasizing critical-thinking and soft skills in the classroom setting. It was also felt that the technological advancements could lead to enhanced collaborations with other schools and other healthcare disciplines.

Optometric profession

The following profession-wide opportunities were highlighted by each table in connection to Goal 1:

- support from WCO, ASCO and administration at optometric institutions
- shared advocacy for the profession and education
- tiered levels of practice

It was felt that some of the advocacy conducted on behalf of the profession should be directed to supporting optometric education as students will become the profession of the future and advocate for the profession down the road. Part of that advocacy could be accompanied by WCO membership after an appropriate level of training has been attained. With a higher level of training, an active optometric association could be formed in the country to help advocacy efforts internally.

Thought was given to considering different levels of optometry to better meet the needs of patients. All optometrists would not need to be trained to the highest level of practice, if those practicing at a different level were in greater demand and less expensive to train. However, there were concerns that creating another level of practitioner would be confusing to the public and other healthcare providers. There was also discussion about cooperation between ophthalmology and optometry related to providing patient care and educating future optometrists to optimize the education and have a better appreciation of how they complement each other. Tiering the profession of optometry might make the distinction between optometry and ophthalmology even more confusing.

Goal 2: Share current best practices in optometric education

Objectives

- share outcome measures for program effectiveness
- explore solutions for deficiencies in and/or threats to resources
- communicate techniques and strategies for faculty recruitment, development and retention
- identify and share effective tools to assess student learning

Goal 2 challenges

Curriculum, faculty and leadership

The following curricular, faculty and leadership challenges related to Goal 2 were elucidated by each table:

- interaction levels and quality control in virtual learning
- match assessment techniques to course content/level
- alignment of competencies assessed on national board examinations and in optometry program curricula

- remove inconsistencies based on geographical area

The need to address this challenge was accelerated when the COVID-19 global pandemic thrust everyone into a virtual learning environment. Many of those who identified themselves as learning/teaching/meeting more effectively face-to-face had to embrace virtual platforms to survive. Ongoing retrospective and prospective studies are collecting data to provide information on best practices. Faculty and administrators are continuing to reflect upon lessons learned and innovative approaches that are here to stay.

TABLE 2
Summary of Goal 2 Challenges and Opportunities

Curriculum, Faculty and Leadership	Students	Optometric Profession
Challenges • Interaction levels and quality control in virtual learning • Are assessment techniques well-matched for course content/level? • Alignment of competencies assessed on national board examinations and in optometry program curricula • Faculty compensation: Are there inconsistencies based on geographic area?	**Challenges** • Changing student expectations • Technology: Is it distracting from patient interaction? • More diverse cultural differences	**Challenges** • Program regulation • Benchmarking of curricular and student outcomes • Need for national board examinations in certain regions • Professional fees for optometrists: Are they in line with other healthcare provider fees?
Opportunities • Flipped classrooms and evidence-based practice • Specialized training programs to promote practicing at the highest level • Global training opportunities • Innovation in teaching, practice and patient care • Leveraging technology for offering more choices in teaching, student assessment and program assessment	**Opportunities** • Enhancing skills that promote lifelong learning • Maximizing use of feedback to boost student learning • Better alignment of student competencies and patient expectations	**Opportunities** • Increased partnerships with all stakeholders

Table 2. Click to enlarge

Student assessment is an important topic that speaks to practitioner competency and preparedness for lifelong learning. While the focus was formerly on curricular elements, greater emphasis is being placed on how we are ensuring that students are learning the content we are choosing to include in their degree programs. There are different assessment techniques designed to best measure student learning that takes place in various environments. For example, are there methods for which we can more objectively assess clinical competency?

Of equal importance is evaluating the alignment of the competencies assessed on licensing examinations with those emphasized in the relevant degree programs. Of note is that several regions throughout the world do not have a standardized examination linked to license acquisition.

Finally, the subject of faculty compensation arose. In the changing higher education landscape, are colleges and schools of optometry poised to offer competitive faculty salaries? Some ideas for value added for faculty recruitment were unique faculty development opportunities, clearly defined pathways for growth and creative ideas for mentorship that lead to more career fulfillment.

Additionally, some regions across the globe are severely understaffed. Can virtual platforms provide much needed support for the faculty that are working in such environments?

Students

The following student-related challenges commensurate to Goal 2 were illuminated by each table:

- evolving student expectations
- technology: is it distracting from patient interaction?
- more diverse cultural differences

Students are expecting more for their tuition dollars in addition to desiring more control over their learning environments. To stay competitive, programs need to continuously engage students on their preferences while also measuring this against student performance.

The technology boom has brought “bright new shiny objects” to the classroom, the laboratory and the clinical setting. Ensuing that students are taught that the focus should still be placed on the patient is critical.

Student bodies are becoming more and more diverse. This diversity enriches the experiences of all, but also comes with unique concerns that need to be properly addressed.

Optometric profession

The following profession-specific challenges corresponding to Goal 2 were discussed by the representatives at each table:

- program regulation
- benchmarking of curricular and student outcomes
- need for national board examinations in certain regions
- professional fees for optometrists that are in line with other healthcare provider fees

Optometry program regulation with standardized approaches to accreditation vary greatly around the world. The advantages of regulation are that prospective candidates, graduates and the public have the assurance of a certain level of consistency and quality for accredited programs. A disadvantage may be that the accreditation bodies have the power to hinder innovation if they do not adjust expectations and regulations in alignment with advancements in delivery models, etc.

As mentioned previously, discussions relative to the need to confirm that curricular outcomes are evaluated in the context of all relevant student outcomes is important.

Another important topic addressed was professional fees for optometrists. Is the profession keeping in step with adjustments made in other healthcare professions? If not, what are the advocacy actions needed? Can shared resources assist in standardizing approaches across geographical and geopolitical settings?

Goal 2 opportunities

Along with challenges associated with Goal 2, groups were able to spotlight opportunities that could be pursued.

Curriculum, faculty and leadership

In alignment with Goal 2, the following opportunities were dissected:

- flipped classrooms and evidence-based practice
- specialized training programs to promote practicing at the highest level
- global training opportunities
- innovation in teaching, practice and patient care
- leveraging technology for offering more choices in teaching, student assessment and program assessment

With the student of today being different than the student of 20 years ago, ongoing innovation in teaching and practice is a must. Like advances in all other aspects of life, teaching must move forward to use new

technologies and keep students engaged. As students becoming professionals are expected to become lifelong learners to stay current with best practices, educators must additionally stay current on teaching approaches. This requires them to keep abreast of advances in teaching as well as in the profession. Incorporating technology into programs for student assessment, patient simulations and monitoring outcome measures was discussed to expand teaching opportunities and reduce costs. The conversation also revealed that technology often has an upfront cost that can make it difficult to implement. Partnering with other groups may reduce the financial impact by creating cost-sharing opportunities.

The development of global training opportunities was one avenue discussed as a possible way to provide education in some areas to foster advancement of the profession. This could allow for more specialized training in areas that require unique skillsets, such as low vision, geriatrics, pediatrics and contact lenses, and would also reduce the financial impact of the training as the specialty topics would not require the addition of another full-time faculty member. It would allow for the training to be conducted by a content expert and not someone with limited expertise in the subject, while laying the foundation to ensure the profession is practiced at the highest level. Additionally, partnerships between institutions could offer opportunities for faculty to pursue advanced degrees that would strengthen teaching programs for the longer term.

Using the approach of flipped classrooms was advocated to increase student engagement. Evidence-based approaches would be part of the discussions to reinforce for students the concept that the science behind patient care continues to evolve. Along with this approach there was a desire to provide more formative feedback in student learning and have more training in cultural respect. The hope was to better align student competencies with patient expectations.

Students

The following student-related challenges commensurate to Goal 2 were highlighted:

- enhancing skills that promote lifelong learning
- maximizing use of feedback to boost student learning
- better alignment of student competencies and patient expectations

The opportunities mentioned centered around creating practitioners who are truly caring doctors and not technicians. The emphasis was on human interaction and recognizing the value of the patient in the room as a person. The desire was to create an education program that not only taught students the necessary materials, but presented the materials in such a way that students understood the need for, and internalized the desire for, lifelong learning. The desire was expressed to construct feedback for students in such a way that it motivated them to pursue additional knowledge independent of faculty guidance.

Optometric profession

The following profession-wide opportunity relative to Goal 2 was identified by each table:

- increased partnerships with all stakeholders

Increased partnerships with all stakeholders were mentioned consistently among all summit participants. The partnerships began with the recognition of what the optometry profession contributes to improving the quality of life for everyone. With that recognition there needs to be an understanding of all that is involved in optometric education and support for that training. It is a mutual support process with optometric education continuing to improve people’s health and quality of life. Optometric education needs to be a partner with practitioners, industry, other healthcare providers and government to be involved in decisions that improve population health.

Goal 3: Share ideas on future developments in optometric education

Objective

- explore future trends in the optometric profession and how institutions will prepare for important changes

Goal 3 challenges

Curriculum, faculty and leadership

The attendees focused on the following challenges specific to curriculum, faculty and leadership:

- current inconsistencies in the workforce (inclusive of faculty and leadership)
- what are the minimum areas of competency and defined levels to earn the title “optometrist”?

As mentioned previously, some institutions are facing critical scarcity in number of faculty members and/or breadth and depth of knowledge and skills. As the scope of practice has evolved, it is imperative that optometrists retain ownership of the fundamental skills that have defined our profession since its inception. Additionally, the need for more specialized training in areas such as the visual sciences, myopia control and traumatic brain injury was identified as an effective pathway to best student, and ultimately, patient outcomes.

An ongoing point of discussion for the profession from a global perspective is which competencies are needed for a healthcare provider to be defined as an optometrist. The WCO has spent significant energy and resources to this end.[13] Does this model need additional adjustment?

The following challenge was discussed as it relates to Goal 3:

Students

- student recruitment as it relates to public knowledge of the services provided by an optometrist and their value from a public health perspective

To continue to have a talented applicant pool who possess the appropriate skills to be successful in optometry degree programs and in optometric careers, the need to educate the public on the value of the profession is paramount.

Optometric profession

In alignment with Goal 3, the following challenge was identified relative to optometry as a profession:

- increased need for advocacy on behalf of the profession relative to expanded scope of practice

Advocacy efforts in the profession of optometry look different depending upon geographic location. Some regions benefit from highly organized efforts that are mobilized by a strong foundational matrix comprised of appropriate education levels, national board examination requirements for licensure and strong accreditation standards. Others, on the other hand, face large opposition without the supporting associations and partnership efforts.

Goal 3 opportunities

Curriculum, faculty and leadership

The following faculty and administrative opportunities corresponding to Goal 3 were brought forth by each table:

- global harmonization of curricula
- defining the path forward for the profession
- transitioning from data collection to data analysis

TABLE 3
Summary of Goal 3 Challenges and Opportunities

Curriculum, Faculty and Leadership	Students	Optometric Profession
Challenges • Current inconsistencies in the workforce (inclusive of faculty and leadership) • What are the minimum areas of competency and defined levels to earn the title "optometrist"?	**Challenges** • Student recruitment as it relates to public knowledge of the services provided by an optometrist and their associated value from a public health perspective	**Challenges** • Increased need for advocacy on behalf of the profession relative to expanded scope of practice
Opportunities • Global harmonization of curriculum • Defining the path forward for the profession • Transitioning from data collection to data analysis	**Opportunities** • Attracting students with strong communication skills • Students who exhibit critical-thinking skills	**Opportunities** • Interprofessional education • Strengthened partnerships with stakeholders

Table 3. Click to enlarge

Transitioning optometric education from data collection to data analysis was considered a laudable goal and discussed at length. It was also mentioned that students need to understand all that is involved in data collection to truly understand good data vs. bad data. While higher-order thinking should be the emphasis, students must also be educated, as in the basic sciences, about how data is collected and what can go wrong in the process. By harmonizing curricula globally, there is a greater opportunity for cultural sensitivity and more alignment in what it means to be an optometrist around the world. Global harmonization also offers the opportunity to create the caring practitioner presented as an opportunity in Goal 2. With optometrists around the world working together, discussions that clarify the future path for the profession can take place.

Students

Opportunities connected to Goal 3 in recruiting the best students were identified as:

- Attracting students with strong communication skills
- Students who exhibit critical-thinking skills

An opportunity exists to recruit students with strong communication and critical-thinking skills to better participate in patient care. The goal is to recruit a student population that could analyze data and effectively inform patients, thus providing more humane care. Along with the strong communication skills there would be an emphasis on cultural competency to be respectful of the individual patient. This discussion ties into the opportunity for faculty and leadership in Goal 3, as well as the opportunity for students presented in Goal 2. The desire is to create a caring practitioner who doesn't see only a pair of eyes, but realizes the patient is a person and is part of a family and a larger community.

Optometric profession

The following profession-wide opportunities associated with Goal 3 were identified by each table:

- interprofessional education
- strengthened partnerships with stakeholders

Integrating optometry more fully into the healthcare systems in each country was every group's goal.

This would offer opportunities for team-based integrated patient care and open the door for interprofessional education for students. This can be assisted by strengthening partnerships with education, industry, other healthcare providers and governmental and professional organizations. As education produces the next generation of optometrists, it needs to be linked to all stakeholders to better address the future.

Discussion

In summary, action plans generated during the summit fell broadly into four areas: linking education to the scope of practice; keeping education on pace with evolving technology and information; recruiting students who will succeed and thrive in the profession; and forging strong partnerships and interactions with all parts of the eyecare community.

There was an interest in an ongoing evaluation and adjustment of the definition of optometry linked to the scope of practice and the competencies required and demonstrated. Summit participants felt that a competency-based curricula offering a skill-based, tiered approach to training would complement broader goals. Student assessment techniques would be further aligned with course levels, the learning activities and intended learning outcomes. A global body could establish benchmarks comparing optometric practice around the world and other healthcare professions. Such a body could also consider the role of online education and a possible route to accrediting that format.

There was a desire to increase the use of technology to strengthen professional/continuing education offerings and refresh and/or retrain practitioners in the field. There was an interest in applying technology to create quality patient care simulations that could replace or supplement some of the direct patient care requirements. This would require some innovation but could enhance student engagement and facilitate the transition from data collection in education to data analysis in patient care. This could possibly reduce some of the cost associated with procuring equipment for educational institutions and students as well. A strong interest was expressed in engaging retired faculty and practitioners as mentors and advisors to institutions with specific needs.

Looking to the future, it was acknowledged that the students of today are the profession of tomorrow. It is important to recruit students with skills sets that match the evolving needs of the profession. Students need to be educated and inspired to be lifelong learners and stay current with evolving evidence-based practices. They need to respect other cultures and be culturally competent as students to become culturally humble faculty, administrators and academic leaders.

Educators wanted to strengthen and broaden partnerships with optometric organizations, such as ASCO and the WCO, but also hoped to further engage industry to support shared initiatives involving faculty and leadership development. It was felt that this would help solidify optometry’s role in interprofessional collaborative care and healthcare systems while also further engaging the public and affording them a better appreciation of the profession and the healthcare services it provides. This would also advance efforts to align legislation and education, which would advance the scope of practice and population health.

Conclusion

Many of the issues facing optometric education are shared by institutions around the world and are not unique to one region. Using shared efforts and resources, innovative models can confront challenges the summit discussions identified. Increased collaborative efforts to address those challenges will allow for effective implementation of the synergistic solutions that were identified. This will facilitate a unified approach to the advancement of the profession of optometry with the ultimate goal of improved patient outcomes.

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Announcement

Call for Papers: Theme Edition to Focus on Global Optometric Education

Desiree Ifft | *Optometric Education: Volume 48 Number 1 (Fall 2022)*

Optometric Education is focusing an upcoming edition of the journal on the topic of global optometric education. We welcome manuscript submissions to this theme edition, which will highlight research, public health, curriculum pedagogy and project-specific efforts specific to international education.

You may submit your manuscript in the customary format [https://journal.opted.org/publication-guidelines/] or as an informational report or article. Content-specific reviewers will be assigned to support atypical submissions that align with the theme edition's mission of sharing ongoing efforts to advance the profession of optometry worldwide.

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