University of Colorado **Boulder**

2020 Program Review

Department of Speech, Language, and Hearing Sciences

Academic Review and Planning Advisory Committee Report

Approved

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Provost and Executive Vice Chancellor for Academic Affairs | Date

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Process Overview

The Academic Review and Planning Advisory Committee (ARPAC) review of the Department of Speech, Language, and Hearing Sciences (SLHS) was conducted in accordance with the 2020 program review guidelines. Self-study responses were prepared by the unit and checked by an internal review committee composed of two University of Colorado Boulder (CU Boulder) faculty members outside of the unit. The internal reviewers submitted a summary of findings derived from the self-study and from interviews and surveys with faculty, staff, and student unit members. An external review committee, consisting of two experts from outside of CU Boulder, submitted a report based upon review of relevant documents and interviews with faculty, staff, and student unit members and university administrators. Owing to the COVID-19 emergency, ARPAC staff facilitated the external review as a remote visit over April 16 and 17, 2020, using web conferencing tools. Internal and external reviewer comments and recommendations are shared when relevant throughout this report.

Unit Overview

The campus' standardized description of the Department of Speech, Language, and Hearing Sciences is available on the website of the [Office of Data Analytics (ODA)](#). ODA updates the profile annually in the fall semester. This report cites data posted in October 2019, reflecting the state of the Department of Speech, Language, and Hearing Sciences as of the academic year (AY) 2018-2019.

Disciplinary Context

The Department of Speech, Language, and Hearing Sciences (SLHS) was established 75 years ago in 1945. In its self-study, SLHS describes its role in the discipline:

> "[The department] conducts research into both basic and applied questions regarding human communication and its disorders. Our scholarship is motivated by the fundamental goal of improving communication for individuals across the lifespan. At its core, our work is translational. That is, we seek to apply our research to real-world issues by providing the evidence that guides the development of new ways to assess communication function and new approaches to efficacious clinical treatments."

The department offers its students an understanding of theoretical frameworks, as well as applied and research-focused training in the areas of speech-language and hearing pathologies and audiology. The reports submitted to ARPAC do not include the department's definition of the distinction between speech-language pathology and audiology. For clarity, both subdisciplines pertain to human communication. A speech-language pathologist focuses on physical and cognitive communication disorders, for which treatment and analysis can involve ears, visual systems, and physiology of the tongue, mouth, and throat. Audiologists adopt a narrower focus specifically on hearing and treat impairments by assessing physical issues.

U.S. News and World Report's most recent ranking of the department's audiology (AuD) program places it 17th out of 76 accredited programs nationwide. The same report ranked the department's Master of Arts in Speech-Language Pathology (MA-SLP) program 24th out of 294 such programs in the United States.

Closer to home, the department's graduate programs in speech-language pathology and audiology receive regional acclaim through participation in the Western Interstate Commission for Higher Education (WICHE). The programs are part of WICHE's Western Regional Graduate Program (WRGP), that opens them to the residents of 13 WICHE alliance states at the cost of a Colorado in-state tuition rate.

The department stewards the Speech, Language, and Hearing Clinic (SLHC) at CU Boulder, providing fee-based services to children and adults in the Boulder and Denver metropolitan area. The clinic offers hearing tests, hearing aids, and counseling for speech and language pathologies. SLHS also provides services via clinics on the CU Anschutz Medical Campus.

Research and Scholarship

SLHS faculty members are especially known for their strengths in understanding the physical, neurological, developmental, and cognitive aspects of human communication. The self-study highlights ongoing research in the areas of literacy and deafness, reading, learning and cognitive disabilities, bilingualism, impacts of childhood development and aging on hearing and speech communication, and epidemiology and hearing loss. More specifically, the research expertise of the department's clinical faculty is focused on hearing-aid signal

processing, neuroplasticity of the central auditory nervous system, and best practices in clinical education. According to the self-study, the department's research activities take place in traditional research laboratories, hospitals, clinics and healthcare facilities, preschool and K-12 education settings, and with community groups via agencies such as the Head Start Program and Rose Foundation, as well as with hearing-aid and cochlear-implant companies.

The AY 2018-2019 ODA unit profile shows that research productivity in SLHS is mixed relative to other CU Boulder social science units. Over the past seven years, SLHS tenure-track faculty averaged 12 refereed articles and chapters (1.73 per year on average), ranking their production level in this category ninth out of ten units. The department's faculty members are more active with delivering conference presentations and papers; at a rate of 30 conference presentations and papers over seven years (4.23 per year on average), ranking SLHS fourth out of the ten units. As a measure of the impact of SLHS faculty member scholarship, the self-study also notes the number of citations associated with their work, as tracked by the CU Boulder Elements (CUBE) database. In the period between 2016 and 2019, SLHS faculty members completed 35 publications that received between one and 10 citations each, seven publications received between 21 and 50 citations each, and one publication was cited more than 50 times. These indicators corroborate the Academic Analytics summary that highlights the department's comparative strengths in two areas: the percentage of tenure-track faculty publishing refereed articles and the number of citations per article, when compared to 12 peer programs within the Association of American Universities (AAU).

The unit self-study lists external funding from public and private sources including National Institutes of Health (NIH), National Science Foundation (NSF), Institute of Education Sciences in the Department of Education, the Hearing Health Foundation, the American Academy of Audiology Foundation, the American Speech-Language-Hearing Association (ASHA), Head Start Program, and the Scottish Rite Foundation of Colorado, among others. In addition, the department's faculty members have received CU intramural grants, including from the CU Innovative Seed Grant Program, the Center to Advance Research and Teaching in the Social Sciences (CARTSS), the IMPART Faculty Fellowship from the Office of Diversity, Equity, and Community Engagement (ODECE), and a Faculty Success Program grant. According to the AY 2018-2019 ODA unit profile, the department's grant expenditures were $4.8 million in the last five years ending in FY 2019, and slightly over $1 million in FY 2019 alone. Both metrics rank the department second out of eight social science units.

In its self-study, SLHS acknowledges that peer-reviewed publications are the primary measure of its faculty members' research productivity, although the faculty also prioritize efforts to disseminate their research and communicate their findings to non-academic audiences, including to clinicians working in speech-language pathology and audiology, public health, and in related cognitive sciences, as well as to professionals in preschool, K-12, and special education communities.

Collaborations

According to the self-study, the department works to "provide infrastructure to help establish and [maintain] collaborative research teams". SLHS faculty members have formed research alliances with their peers across many CU Boulder departments, including in Integrative Physiology, Information Science, Psychology and Neuroscience, Philosophy, Linguistics, and Applied Mathematics, as well as with researchers working at CU Anschutz, CU Denver, and across other Rocky Mountain region research centers.

Six SLHS tenure-track faculty members are fellows of the Institute of Cognitive Science and three are affiliated with the Center for Neuroscience. The self-study also mentions the Leeds School of Business, and the departments of Computer Science and Applied Mathematics as SLHS collaborators. SLHS also works with the Intermountain Neuroimaging Consortium in Boulder. The consortium offers faculty members access to functional magnetic resonance imaging (fMRI) facilities and opportunities to work with physicists and engineers on advanced imaging methods.

Outside of Boulder, the department collaborates with regional universities on the development of its graduate certificate curricula. SLHS has also worked with the Colorado Department of Education, Metropolitan State University, and the University of Northern Colorado to address a shortage of speech-language pathologists, particularly in rural communities throughout the state, and more broadly. The department participates in the Clinical and Translational Research Center as part of the Colorado Clinical and Translational Sciences Institute (CCTSI). The center provides access to medical staff, nutrition, pharmacy and exercise physiology services, as well as to statistical support and assistance in managing adverse events. CCTSI members form a collaborative network across the northern Front Range, with affiliations that include the CU Anschutz, Denver, and Boulder campuses, as well as Colorado State University.

Beyond Colorado, the self-study notes the department's research collaborations with Northwestern University and the Rochester Institute of Technology for the study of hearing loss and cardiovascular risk factors, and also mentions research collaborations with private companies focused on hearing aids and cochlear implants.

The self-study reports that SLHS tenured and clinical faculty members sit on a number of national, state, and community advisory boards and work as editors for journals and books within the discipline, as well as in the fields of psychology and communication.

International Context

The self-study notes SLHS research collaborations with universities in Sweden, Wales, Ireland, and England. One of the department's faculty members is a U.S. representative and current chair of the International Association of Logopedics and Phoniatrics Audiology Committee, which advises the World Health Organization. Another is a board member on the International Clinical Linguistics and Phonetics Association.

Campus Context

The Department of Speech, Language, and Hearing Sciences (SLHS) is uniquely situated to offer students interested in clinical practice or research an academic foundation. As noted previously, SLHS offers clinical services via the Speech, Language, and Hearing Clinic (SLHC), in addition to conducting research and teaching. Post-baccalaureate students may also participate in the Speech-Language Pathology Assistant (SLPA) program which allows students to complete Colorado Department of Education licensure requirements, and the Speech-Language Pathology Prerequisites (SLPP) program which certifies the completion of SLP prerequisites to prepare students for further graduate study.

The self-study describes the department's interdisciplinary teaching mission and how its undergraduate curriculum is focused on mixing learning opportunities in classroom, research lab, and clinical settings. Six of the department's courses are cross-listed with other units, making it easier for students to take SLHS courses while also meeting the College of Arts and Sciences' requirements for natural sciences, foreign language, and contemporary societies, as well as to complete various undergraduate certificates. In designing their instructional program, SLHS faculty members collaborate with their colleagues in the departments of Communication,

Linguistics, Psychology and Neuroscience, and at the Colorado School of Public Health. SLHS is poised to further extend these interdepartmental collaborations, as evidenced by a recent proposal to develop an undergraduate singing health specialist certificate in partnership with the Voice Performance Department in the College of Music.

At a broader level, the department undertook efforts in 2019 to develop a mission, vision, and strategic plan centered around CU Boulder's strategic imperatives. The self-study also identifies SLHS' potential to situate itself as central to the mission of the College of Arts and Sciences, while improving its reputation and ranking within the field.

Faculty and Research Personnel

According to the AY 2018-2019 ODA unit profile, the department employs nine tenured and tenure-track (TTT) faculty members, two instructor-track faculty, 13 lecturers, two assistant professor adjuncts, and 10 teaching assistants. The department's clinical and research personnel include two clinical associate professors, five clinical assistant professors, three professional research assistants, one postdoctoral researcher, and a student research assistant. In addition, ODA lists four scholars-in-residence who work on research and clinical education in the department.

The self-study provides additional context to SLHS personnel totals, including:

- The department hired a new chair in August 2019, bringing the total count of tenure-track faculty members to ten, with four of these not yet having earned tenure.
- The self-study notes one new instructor hire since the 2013 review.
- The self-study counts nine full-time equivalent (FTE) clinical faculty members and notes that the College of Arts and Sciences funds three of these; the others are paid for by monies from campus academic program allocations, tenure-track faculty member research buyouts, revenue from SLHS' collaboration with the Division of Continuing Education, training and clinical demonstration grants, and the leaves and replacements process.
- The self-study also reports six research associates and professional research lines, and that these are funded from external grants and contracts.

Per the AY 2018-2019 ODA unit profile, SLHS assistant and associate professors earn on average 102% and 103%, respectively, of their disciplinary peers within the Association of American Universities (AAU). However, full professor salaries average only 81% of AAU peer average salaries. Clinical personnel salaries are not listed in the ODA unit profile, but the self-study notes that "[t]he average salary for [SLHS] full-time clinical faculty is not quite $58,000" and the external reviewers comment that these salaries are not competitive relative to what peer institutions pay.

Six of the department's tenure-track faculty members (representing more than half the total) have retired or departed since the 2013 review. Over this time, the department never returned to its prior size, with one to three of its faculty lines vacant at any given time. The department also saw its clinical faculty roster diminished in recent years, again owing to retirements or departures.

The department's self-study identifies several challenges as significant contributors to faculty turnover and hiring difficulties, including that SLHS ranks 11th in the size of its tenure-track faculty relative to 12 of its AAU peers, according to the Academic Analytics data cited in the self-study. This small size reduces the department's research and grant productivity relative to its peer programs and complicates its work to offer a complete curriculum, especially as increasing numbers of students enroll in SLHS classes. The external reviewers caution that this dynamic could jeopardize faculty retention and mentorship, the stability of faculty research and doctoral programs, curriculum development, as well as the department's national and international visibility and reputation.

Additionally, the external reviewers express concern about the standing of the SLHS clinical faculty. As already noted, the reviewers observe that SLHS clinicians suffer from uncompetitive salaries, saying that these are lower even "than the starting salaries of their masters-level graduates." Additionally, they observe that the clinicians experience instability from one-year reappointment contracts and from appointment titles that "do not appear to reflect [their] advanced degrees, research support, and didactic teaching duties." Concerns surrounding SLHS' clinical salaries could be attributed to the funding source itself. Because the department relies on irregular revenues to fund its clinicians' salaries, it cannot easily compete with market averages. Additionally, both the internal and external reviewers express concern about the lack of a clear career path for the clinicians. The self-study indicates that SLHS is aware of these

issues, but because the department self-funds the salaries of more than half of its clinicians, there is not much it can do to advance its strategic priorities for these employees, including to institute three-year contracts for clinical faculty (its highest strategic priority) without a stable funding stream. Greater funding stability would not only enable SLHS to reliably dedicate its clinical faculty to teaching MA and AuD courses, but in doing so, it would free up other instructional faculty to teach more undergraduate and PhD courses.

Finally, SLHS would like to hire an additional instructor to assist with offering advanced American Sign Language (ASL) courses, which see high student demand. These courses also satisfy the College of Arts and Sciences' foreign language requirement. Additionally, an ASL hire might present the department an opportunity to hire a deaf instructor (as all prior ASL hires have been) and to expose more students to the deaf community.

Staff

According to the AY 2018-2019 ODA unit profile, the department employs five exempt staff members and 48 hourly student employees. ODA lists one of the staff positions as temporary. According to the self-study, since 2016, the department has added two full-time equivalent staff lines, bringing its count to six full-time lines. Four of these positions are dedicated to completing general administrative and academic support work, while two others are assigned to managing the Speech, Language, and Hearing Clinic's operations. The current delineation of staff duties was a result of an earlier reorganization that included reclassifying positions to better reflect their duties and responsibilities. Looking ahead, SLHS intends to hire someone to provide grant funding support. Additionally, the department anticipates needing to gain a half-time clinical support position to accommodate a growing graduate student population and increased community demand for SLHS' clinical services.

Undergraduate Education

The Department of Speech, Language, and Hearing Sciences (SLHS) confers the Bachelor of Arts (BA) degree, a minor, and two certificates: the Speech-Language Pathology Assistant (SLPA) certificate and the Speech-Language Pathology Prerequisites (SLPP) certificate; both offered online.

Students completing the BA must take 35 credits of SLHS coursework plus one lower division course in psychology (PSYC 1001). SLHS majors typically take courses within three general areas:

- Characteristics, causes, and treatment of disorders that impact speech, language, and/or hearing;
- Human communication science; and
- Linguistics, specifically the normal development of language in children, phonetic transcription, and language structure.

Coursework for the new undergraduate minor consists of two required foundational courses and 12 credits of SLHS electives in communication, linguistics, or audiology.

The 2018 campus census conducted by ODA shows SLHS with 212 majors, representing a 4% decline compared to five years ago. The count ranks SLHS sixth among nine social science units that confer undergraduate degrees. The self-study notes that 12 students were enrolled in the minor (SLHS first offered the minor in the fall of 2019). In AY 2018-2019, SLHS conferred 71 BA degrees, representing a five-year 9% increase, and again ranking the unit sixth among nine social science units.

In AY 2018-2019, SLHS generated 4,768 student credit hours, ranking the department seventh out of nine undergraduate credit generating social science units, and marking a five-year 16% drop. The self-study attributes this decrease to the mechanics of the department offering required major courses every semester. Additionally, the department cites difficulties with scheduling larger classrooms, resulting in lost capacity to offer the types of heavily subscribed general enrollment courses that would generate more credit hours. That said, non-majors still accounted for 43% of the department's student credit hours. The ODA unit profile also records the percentage of credit hours taught by personnel category: tenure-track faculty members taught 14% of the total (a 38% five-year decline), professional instructors taught 29% (a 41% five-year decline), and graduate students taught 33%.

The self-study describes a number of challenges facing the SLHS undergraduate program, but calls out three in particular. First, SLHS is aware that the cost of its commitment to maintain small class sizes—while lacking sufficient instructional personnel to expand its teaching

capacity—is the loss of an opportunity to open more course sections. Second, the department is aware that it must do more to diversify its undergraduate student population. The current student cohort closely mirrors the gender and racial/ethnic imbalance of the speech-language and hearing sciences profession as a whole; namely a homogenous makeup that skews heavily toward women (the gender with which 97% of SLHS undergraduate students identify), and toward a predominantly white group. Indeed, only 23% of SLHS undergraduates identify as belonging to an underrepresented minority population, according to the self-study.

Third, the department faces a challenge meeting demands from undergraduate students for American Sign Language (ASL) instruction. With only two full-time ASL instructors, SLHS already offers eight ASL course sections each fall and spring semester, and three during the summer. The self-study notes that "[t]he demand for ASL classes far exceeds the number of seats available. In fact, waitlists are consistently large enough that multiple additional sections could be offered if there were adequate resources." In the summer of 2020, SLHS added an online section for its ASL introductory course with funding from the college. SLHS hopes to gain permission to hire at least one additional full-time ASL instructor. Doing so might allow the department to develop another ASL course level, and possibly to offer an ASL minor. The department also hopes that discussions underway with the Anderson Language and Technology Center (ALTEC) will expand access to ASL learning, including by developing ASL language course materials for the wider community, by developing ASL placement and proficiency testing, by creating a permanent studio for video and audio recording, and by establishing a graduate seminar for using ASL in clinical practice.

As noted above, SLHS courses are typically small (with average enrollments of 33 students per section). This is due to the labor-intensive nature of the course material and a high degree of hands-on technical pedagogy. Classes taught by tenure-track faculty members average 37 students according to the ODA unit profile, while enrollments in instructor-taught courses averaged 19 students. Faculty course questionnaire (FCQ) course rankings are 75% of the maximum possible score, while instructor ratings are 82% of the maximum, indicating good student satisfaction with the SLHS curriculum and with the ways in which it is taught.

Undergraduates who participate in the department's honors program gain opportunities to pursue their own research and complete a thesis under the guidance of an SLHS faculty advisor. According to the self-study, SLHS students completing honors research also

collaborate with faculty members from departments such as Linguistics, Sociology, and Psychology and Neuroscience. In AY 2018-2019, 6% of the 71 BA degrees awarded were conferred with honors, a 266% increase from the previous five years. According to the self-study, SLHS has seven laboratories that encourage and cultivate undergraduate student research. Currently, these labs engage 14 undergraduates, with five students working as paid research assistants, four as unpaid volunteers, and five receiving funding from CU Boulder's Undergraduate Research Opportunities Program (UROP). The department encourages its undergraduates to co-author papers with their faculty mentors and to present their findings at regional and national conferences. Internships are also central to the undergraduate curriculum. The self-study indicates that in 2019, 44% of SLHS undergraduate majors were enrolled at some point in credit-bearing internships.

As part of SLHS' community engagement efforts, undergraduates participate in outreach events organized by the National Student Speech, Language, and Hearing Association (NSSLHA), a student-led group. NSSLHA events also attract participation from SLHS faculty and staff members as well as members of the general public. In 2019, NSSLHA members volunteered at a fall festival at the Bee Hugger Farm in Longmont to raise money for the Child Learning Center (CLC), an integrated preschool within the Speech, Language, and Hearing Clinic (SLHC) which operates to benefit children with special needs, including those who live in foster homes.

The department's BA graduation rates reached a peak of 93% in 2019, up from 76% in 2015. These rates exceed the College of Arts and Sciences' seven-year average, with approximately 20% more SLHS students graduating in four years compared to college-wide figures over each of the past seven years, according to the self-study. Moreover, the mean time to graduation is typically half a year less for the typical SLHS student than an average College of Arts and Sciences undergraduate. The self-study goes on to note that the department's undergraduate retention rates, calculated based on the percentage of SLHS students returning for a second fall semester, also exceeded the college's averages by 4% to 17% annually since 2013. SLHS credits their success in expediting student graduations to the practice of offering upper division courses every semester and from ensuring that required courses do not overlap in scheduling. SLHS also acknowledges that intentional and proactive outreach on the part of its academic advisor has kept students on track towards graduation and significantly increased

student engagement with over 95% of SLHS majors attending an advising meeting at least once a year.

A survey of SLHS undergraduate students conducted by the internal reviewers in January 2020 suggests general satisfaction with the degree program. According to the survey, 98% of participating SLHS undergraduates (from a group of 99 student responses, representing a 40% response rate) reported being either "satisfied" or "very satisfied" with the program. The internal reviewers attributed this degree of satisfaction to the commitment and dedication of faculty members. That said, some student respondents also expressed frustration with a lack of class sections, especially for advanced ASL courses. For their part, the external reviewers echo the internal reviewers' findings, stating that the program, "from advising to instruction, is healthy and provides excellent pre-professional training with high student satisfaction."

An earlier ODA survey conducted among seniors in the spring of 2016, and a 2017 National Survey of Student Engagement (NSSE), likewise suggest strong student satisfaction with SLHS. The 2016 survey garnered a 52% response rate, and of the 39 respondents, 87% indicated that SLHS successfully met their educational goals, 87% were satisfied with their major, and 87% were satisfied with the department's academic advising. The 2017 NSSE survey corroborate these figures, with 88% of the 11 respondents reporting satisfaction with the availability of required SLHS courses, 85% reporting satisfaction with the quality of SLHS academics, and 73% satisfaction with advising. While this was a small sample, the results ranked SLHS first among the social science units for course availability and academic quality and second for advising quality.

The current review provided SLHS an opportunity to begin to define its undergraduate learning outcomes and to track student progress toward those outcomes. As part of the department's self-study, SLHS formed a committee to review and modify its existing approach to assessment work and to align its learning outcomes more clearly with the department's goals for pre-professional training and with CU Boulder's baccalaureate learning goals. As a result of these deliberations, and with assistance from the institutional research division of the Office of Data Analytics, the department approved five learning outcomes. Going forward, the SLHS assessment committee plans to monitor and, as needed, revise the department's learning goals. The committee will seek to understand direct and indirect measures of student learning, including to collect student self-evaluations, course grades, clinical competency ratings, and

informal feedback, but notes that sometimes the aggregation of such metrics can lead to a fragmented picture of SLHS' academic programs' effectiveness. In its self-study, the department proposes to develop a "more integrated" assessment process, but the provided description abruptly cuts off, so one can only infer that the new committee and its assessment monitoring efforts will address such integration.

Graduate Education

SLHS offers three graduate degrees. At the master's level, the department confers the Master of Arts (MA) degree. The MA program spans seven semesters and prepares students to meet the licensure requirements of the Colorado Department of Education (CDE) and the Colorado Department of Regulatory Agencies (DORA) as well as of the American Speech-Language-Hearing Association (ASHA). In order to earn the MA, students must clock a minimum of 400 hours of supervised clinical work in addition to 36 credit hours of coursework. The self-study notes that out of 294 accredited programs nationwide, U.S. News and World Report ranks CU Boulder's MA 24th. The MA program appears to be highly competitive, attracting 400–500 applicants per year between 2013–2019, and accepting an average of 6.4% of these (according to the self-study, SLHS accepted 204 of 3,189 applications in that time period). The self-study also states that MA graduates have consistently reported 100% employment as speech-language pathologists within three months of graduation in public school settings, hospitals, long-term care facilities, home health, or private practice.

The doctorate in audiology (AuD) prepares students for clinical audiology careers and leads to the licensure and national credentials through the same accrediting bodies noted above. The 11-semester AuD program begins with a supervised clinical practicum focused on campus lab work. Second-year students proceed to complete their practicum at the audiology clinic at the University of Colorado Hospital, then move into a variety of clinical settings in the Boulder-Denver area in their third year. Fourth year internships are full-time, and SLHS students are placed in clinical settings across the country. As noted above, U.S. News and World Report ranks CU Boulder's AuD program 17th out of the 76 accredited peer programs nationwide. According to the self-study, between 2013–2019, the AuD program averaged 102 applicants per year for ten positions (a 9.8% acceptance rate). AuD graduates consistently reported 100% employment as audiologists within three months of graduation, while the external review report notes the time-to-hire as six months.

Finally, SLHS offers a PhD in Speech, Language, and Hearing Sciences. The degree is designed to prepare students for research and teaching careers. SLHS doctoral students also have opportunities to pursue additional certifications. AuD students sometimes combine their clinical doctoral degree with the SLHS research PhD, for example, and the department's doctoral students sometimes join doctoral programs in neuroscience and/or cognitive science to attain double or even triple PhDs. Regarding its own PhD program, the self-study acknowledges that SLHS has "not been able to consistently offer a core curriculum beyond a research design course" owing to a number of factors, including the degree's small student cohort, students' diverse research interests, and funding scarcity. The department's self-study states that the PhD degree program currently enrolls five students.

The AY 2018-2019 ODA unit profile indicates that SLHS awarded a total of 24 MA degrees in the prior year, representing a five-year 14% drop. Among SLHS MA students, 66% finished within two years. In AY 2018-2019, SLHS awarded 10 doctoral degrees, representing a 25% increase from five years ago. The ODA unit profile also reports the median time-to-degree for the doctoral degree at 3.72 years, with a range extending up to ten years (the ODA unit profile does not differentiate between the AuD and PhD degrees). Between 2013–2019, 97% of the department's MA students completed their degree program while 90% of AuD students completed theirs, according to the self-study.

According to the fall 2018 student census conducted by ODA, SLHS enrolled 62 MA students (which is 6.9 students per tenure-track faculty member) and 50 doctoral students (5.6 students per tenure-track faculty member; again, covering both AuD and PhD tracks). These totals mark a 13% decline and a 14% increase, respectively. Despite having the lowest faculty member-to-graduate student ratio in the social sciences, SLHS in its self-study says that it encourages its pre-tenure faculty members to not take on doctoral students in order to make more time to focus on their research and publication work leading to tenure. This particular assessment is not shared by all of the faculty members, according to the internal reviewers. It is important to note also that the College of Arts and Sciences uses a faculty member's record of graduate student mentoring for deciding the merit of their tenure and promotion case. The results of the Campus and Workplace Culture (CWC) Survey administered by the Office of Data Analytics (ODA) and the Office of Institutional Equity and Compliance (OIEC) in fall 2019 highlights ambiguity surrounding the department's pre-tenure work expectations, with only 33% of survey respondents saying that the evaluation criteria for performance and promotion are clear.

In its self-study, SLHS describes its frustration with the college formula that allocates funding for teaching assistant (TA) and graduate part-time instructor (GPTI) lines based on the department's undergraduate student enrollments. Since SLHS' graduate program is disproportionately larger than its undergraduate program, the department is left with fewer TA/GPTI appointments relative to other CU Boulder graduate programs of a comparable size. The AY 2018-2019 ODA unit profile shows SLHS with only 10 teaching assistants, and these TAs taught nearly 33% of the undergraduate student credit hours generated by the department. A student survey administered to graduate students by the internal reviewers in spring 2020 revealed that 28% out of 18 AuD student respondents, and 47% of 30 MA student respondents, indicated that they were either "dissatisfied" or "very dissatisfied" with their financial support. In its self-study, the department argues that the college should allocate additional funding for TA/GPTI lines.

SLHS is also frustrated by not having enough resources to adequately staff its MA and AuD programs with clinical faculty members, even though clinical teaching is mandated by accrediting bodies. As noted previously, this not only impacts the retention and career advancement for clinical faculty but also instructional delivery of the graduate curriculum. The department has asked the college to cover clinical faculty member salaries that it currently pays for from other revenues. This might also allow SLHS to apply freed up resources to better support its graduate students.

SLHS notes that its current PhD program is small, saying that the department hopes to acquire "[a]dequate numbers of PhD students to support a regular rotation of coursework that will be relevant to the diverse areas of research interest of doctoral students." The unit self-study claims that the high teaching workload of its tenure-track faculty members precludes them from prioritizing the PhD program. The internal and external reviewers likewise cite the department's small faculty complement as an obstacle to developing additional PhD-level courses and seminars, leading to the outsourcing of teaching and coursework to faculty in cognitive science and neuroscience. This concern, coupled with ambiguity regarding graduate student advising spurred the internal reviewers to urge SLHS to come "to a consensus about the current state and future direction of the doctoral program in order to strengthen the case for additional investment in it."

In addition to these internal pressures, the department will soon face competition for students from the Metropolitan State University in Denver, which is scheduled to begin offering an MS degree in speech-language pathology beginning in 2021. SLHS is concerned that this new program would create increased competition for Colorado resident applicants and for students from underrepresented backgrounds, as well as complicate the department's ability to establish and maintain off-campus internship sites for its MA students.

Postdoctoral Training

The AY 2018-2019 ODA unit profile notes one postdoctoral research associate in the unit. The unit self-study does not mention any postdoctoral training.

Budget

The self-study report offers a comprehensive look at the department's budget. The budget is organized into two main cost categories: academic/research expenditures that represents 93% of the total budget (based on FY 2019 figures), and clinic activities that represent the remainder. The academic/research budget draws from the university's general fund to pay for salaries, operating expenses, and for uncovered teaching needs. The department's own revenues support clinical teaching, research and startup costs, while revenue from gift funds are employed to support undergraduate and graduate students. Looked at in more detail, the department's funding sources include academic program allocations (formerly course fees) associated with the undergraduate, MA, and AuD programs; summer teaching revenues; department allocation indirect costs recovery (DAICR) monies; and revenue derived from the department's partnership with the Division of Continuing Education for offering SLPP and SLPA post-baccalaureate certificates. The department's gift funds are derived from an endowment and a gift account, but the self-study notes that neither have been used consistently in previous years.

According to the self-study, the department has received a stable operational budget of approximately $40,000 per year since 2014. Allocations from the AuD program also held at approximately $56,000 annually, but those from the MA program have dropped 10%, from $220,000 in 2014. Over this time, graduate school fellowship funds averaged about $66,000 per year and allocations from the undergraduate program averaged about $12,000 annually; both remained unchanged. DAICR monies have fluctuated: the self-study outlines ~$60,000

revenue in 2014, peaking at ~$92,000 in 2017, and falling again to ~$75,000 in 2020. Similar fluctuations impact SLHS's revenues from its collaboration with Continuing Education: in 2014, the department reported revenues of approximately $224,000, steadily increasing to a peak of ~$404,000 in 2018, followed by a sharp decline to $138,000 in 2020.

Clinic activities generate about 7% of the department's overall budget, primarily from the Speech, Language, and Hearing Clinic (SLHC) and also via three grants that support the Child Language Center housed within the SLHC. As of 2020, the clinic budget totaled approximately $110,000. The self-study reports that the SLHC's largest expense is for a full-time staff position that supports the center's operations, although there is a growing need to add a half-time position to support the directors of clinical education with student records and placements, and for money to acquire a more efficient electronic health records system.

Space and Infrastructure

According to the AY 2018-2019 ODA unit profile, SLHS has 13,953 square feet of assigned space, ranking the department third out of nine social science units. Among the unit's principal space utilizations are classrooms (comprising 9% of available space), laboratories (25%), and offices (37%). The department has occupied its current facility for the last 38 years; the building serves as home to tenure-stream and clinical faculty members' offices as well as to their respective research laboratories. The building is also home to the department's administrative offices, two classrooms, and two smaller conference rooms. In its self-study, SLHS reports that the building underwent a major HVAC renovation in the summer of 2017. The project necessitated shutting down many of the department's research laboratories. Although the shutdown delayed progress for first- or second- year assistant professors who were working to establish their laboratories, the self-study and external reviewers note that the addition of air conditioning has considerably improved working conditions in clinical and observation settings.

In terms of square footage, SLHS acknowledges in its self-study that its space allocation is adequate, but that improvements to space layout and infrastructure should be made to assure compliance with HIPAA and FERPA privacy guidelines for students, clients, and clinical faculty. SLHS also requests an upgrade to its audiology booths to make these compliant with safety and emergency protocols; and to acquire access to additional classroom spaces that

accommodate larger class sizes (upwards of 70 students). Finally, the department is also reviewing the needs of its clinical spaces and changes to related safety and security measures.

Support Needs

As part of its self-study, the department surveyed its faculty members to gauge their needs for additional teaching and research resources, or for other support. Overall, SLHS faculty reported general satisfaction. That said, the self-study notes that the department would like greater awareness about the offerings of various academic support organizations, including from the Research and Innovation Office (RIO), the Office of Contracts and Grants (OCG), the Office of Postdoctoral Affairs, the Office of Information Technology (OIT), the CU Boulder Writing Center, and the University Libraries. Of particular note, the self-study outlines an ongoing concern about access to medical research journals that are only available through CU Denver and the CU Anschutz Medical Campus.

Additionally, SLHS expresses concern in its self-study that OIT does not support its primary classroom in the SLHS Building. This concern is shared by the external reviewers, who also add that OIT "does not support the classrooms, clinic, and observation rooms in SLHS. When equipment fails, departmental staff are called to repair or plan for replacements. This is both inefficient and ineffective for instructional consistency and clinical care."

The department's ability to efficiently recruit appropriate individuals to participate in faculty research on hearing loss, developmental disorders, aphasia and speech disorders, and bilingualism present an additional challenge. According to the self-study, the department proposes to establish a broader recruitment net for its researchers by "working with the CU Institutional Review Board (IRB) to develop recruitment protocols that allow investigators to access common pools of research participants."

Governance

At the time of its self-study, the department was in the midst of forming a bylaws review committee. The status of their review work is unclear at the time of this writing. It is also not clear how department members can access the bylaws or grievance procedures, except in the case of graduate student grievances, which are described in the SLHS Graduate Student Handbook and posted online.

The bylaws appended to the self-study were last revised in January 2015, and describe procedures for selecting department officers from among full-time faculty members holding multi-year contracts. The bylaws preclude clinical faculty from holding leadership roles since they do not hold multi-year contracts. The bylaws specify that graduate students may serve on several of the department's oversight committees. Finally, the bylaws specify that voting privileges are limited to tenure-track and instructor-track faculty members with appointments greater than 75% who hold multi-year contracts.

The department is led by an elected chair. The chair is assisted by an associate chair, an undergraduate program director, and two graduate program directors. Other SLHS leaders include the SLHC director and the department's representative to the College of Arts and Sciences Council. An elected executive committee governs the department. The executive committee is supported by seven standing committees. These oversee, in turn, merit evaluations, clinical education and services, undergraduate education, graduate education, research, academic community, and diversity. Members of the merit evaluation committee are elected to three-year terms. At least one non-tenured faculty member serves on the committee. The committee applies criteria for annual merit based on a formula that faculty members with voting privileges approve.

Neither the self-study nor the bylaws describe faculty hiring procedures. The department is also aware that it has not clearly defined instructor reappointment procedures (the self-study states that this will be corrected). As noted previously, the external reviewers call attention to the need for the department to define its rules governing the advancement and promotion of clinical faculty members.

This year's review also found no procedures in place governing the mentoring of instructors, staff, or students. That said, SLHS finalized a mentoring plan for pre-tenure faculty in 2015. The 2015 plan defines the department chair's responsibility to assign each pre-tenure faculty member one of two mentors, the other being the responsibility of the mentee to choose every two years. The 2015 plan also stipulates that all non-tenured and clinical faculty members shall constitute an ad hoc group that meets formally once per year to bring issues of mutual concern to the chair.

According to the self-study, the directors of the MA and AuD programs are responsible for mentoring clinical faculty members, including to meet every other week as a group. The department's administrative staff are mentored by their immediate supervisors.

The bylaws detail the department's grievance procedures, explaining that "when a dispute or grievance arises, it should be handled according to the following policies, which are based on the principle of resolving such matters at the lowest possible administrative level." If a grievance cannot be resolved in this way, it is assigned to the chair via a written complaint. The chair may then appoint an ad hoc grievance committee to handle the dispute, or rule on the matter directly. Appeals may be taken to higher levels within the university, depending on the nature of the grievance. Student grade appeals follow the college's procedures, while cases involving protected class discrimination follow campus procedures.

Inclusive Excellence

The field of speech-language and hearing sciences is assumed to be dominated by white women. Another prevailing assumption is that people in the field remain in the country in which they were credentialed (this characteristic is understood to be driven by the specific ways that national certification boards accredit undergraduate and graduate programs). Indeed, the specificity of this credentialing might explain why the department has no international faculty or students, according to the AY 2018-2019 ODA unit profile.

Reflecting the first of these prevailing assumptions, the AY 2018-2019 ODA unit profile showed that all the department's nine tenure-track faculty lines were held by women and all but two by individuals who identify as being white. SLHS hired a new chair in August 2019, updating the count to 10 tenure-track faculty members, and adding a man to the faculty membership. Of the 212 undergraduates counted in fall 2018, 97% identify as women, and 25% identify as belonging to a minority population (i.e., Asian American, African American, Hispanic/Latinx, Native American, Pacific Islander) while 20% identify as belonging to an underrepresented minority population (i.e., African American, Hispanic/Latinx, Native American, Pacific Islander). Similarly, among SLHS graduate students, 90% identify as women, 24% identify as belonging to a minority population, and 14% as belonging to an underrepresented minority population. In its self-study, SLHS recognizes a need to focus on recruiting more students from underrepresented populations, and on attracting more men to its educational programs.

More broadly, the department leverages its programs to engage in inclusive excellence work. For example, the Speech, Language, and Hearing Clinic (SLHC) allows the department to serve children with special learning needs, adults recovering their language skills, as well as transgender and non-binary individuals. The center offers hearing screening and bilingual programs to individuals from underrepresented backgrounds, and provides assessment and training of gender expression and communication. The department has even designed pronoun banners for SLHC clinicians to wear on their ID badges in an effort to be more inclusive. Meanwhile, the SLHS Child Learning Center serves as an integrated preschool focused on serving children with identified special needs such as being English language learners or coming from an adoption background. SLHS graduate students also work with Boulder County's Head Start Program to assist young children for whom English is a second language. An SLHS faculty member was recently awarded a grant to undertake a community project "focused on the culturally responsive practices of speech-language pathologists and addressed the needs of culturally-linguistically diverse (CLD) families." Finally, SLHS has collaborated with the Department of Theatre and Dance to develop a theatrical production of The Wizard of Oz focused on engaging individuals with aphasia due to stroke. The production integrates activities designed to promote verbal and nonverbal communication.

Unit Culture

In the fall of 2019, the Office of Data Analytics (ODA) and the Office of Institutional Equity and Compliance (OIEC) included SLHS in a survey that asked participants to gauge their feelings about their workplace. ODA and OIEC also invited personnel and graduate students in eight other social science units to participate in the Campus and Workplace Culture (CWC) Survey. Compared to these other units, SLHS faculty/staff members and graduate students participated at "substantially lower" rates than their peers in other departments: 52% (versus 72% among faculty/staff in other departments) and 30% (versus 53% among graduate students elsewhere). The unit self-study attributes the low response rate to the fact that many of SLHS' part-time and adjunct faculty members work primarily off-campus and are thus less inclined to complete the survey.

The self-study contextualizes the culture survey findings, saying that the responses of SLHS graduate students indicate a strongly positive academic environment for them, while faculty and staff member responses raise concerns about the department's workplace culture.

Among the 30% of SLHS graduate students who responded to the survey, 81% say that they feel welcome at CU and 90% in SLHS; 84% say that they are proud to be a student at CU and 90% in their graduate program; 77% say they feel like a respected member of the CU community; and 84% a respected member of their graduate program. Additionally, 77% of the respondents said that they feel valued, 77% feel supported in their graduate program, and 81% say that SLHS faculty are invested in their success. Only when asked about administrative issues did larger concerns arise, with only 48% of participating graduate students saying that they "agree" or "strongly agree" that the department has clear evaluation criteria, and 60% "agree" or "strongly agree" that the department allocates its resources transparently.

As already noted, only 52% of SLHS faculty and staff members participated in the CWC survey. Among this group, 67% of SLHS faculty and staff feel welcome at CU Boulder and fewer, 58%, in their own department. Only 46% "agree" or "strongly agree" that their work is valued by their department and 38% by CU; 46% say that their workplace culture is positive; and 32% say that the career mentoring they receive is adequate. The responses from SLHS faculty and staff also shed a light on department norms. Only 50% of respondents "agree" or "strongly agree" that angry outbursts are not tolerated and only 50% that everyone is treated with dignity. Only 32% of responding SLHS faculty/staff members agree that senior faculty, supervisors, and department leaders effectively address problematic behaviors that undermine the work environment.

Additionally, half of the respondents said that they had given serious thought to leaving their position. The self-study describes steps to take in the wake of the survey, including to discuss the results with all unit members, to work with OIEC and the Ombuds Office on an improvement strategy, to prioritize two to three goals that could be implemented in the near-term, and to re-run a survey after these initial steps in order to assess progress. The current implementation status of these action items is not made clear in the self-study. The internal reviewers similarly note these gaps in their report, and recommend that the chair address negative perceptions of the unit's culture.

Past Reviews

The last program review in 2013 resulted in nearly a dozen recommendations addressed to SLHS. In the years since, the department has made headway on a number of these, including to review its bylaws; to establish a mentoring plan for its pre-tenured faculty; to develop student learning outcomes; and to renew efforts to diversify its student population. As it relates to the latter, SLHS recently received a sizable endowment intended to help the department recruit and train master's students who identify as belonging to an underrepresented minority population or who are interested in working with underrepresented communities.

Relative to other social science units, SLHS tenure-track faculty have been productive in securing external funding and in publishing research while carrying high teaching workloads (2:2). At the last review, ARPAC recommended that SLHS work with the College of Arts and Sciences to reduce faculty member teaching loads to give faculty more time for research and publication. The college responded with a reduction to a 2:1 load beginning in the fall of 2019.

External factors have stalled progress on other recommendations. For example, in response to the 2013 recommendation that asked SLHS to grow its revenue streams, the department considered converting its clinical offerings to a professional master's model but ultimately did not, citing a projection of insufficient revenue generation, as well as the existence of professional accreditation standards that require a specialized curriculum. Additionally, SLHS faculty members discussed the idea of expanding two online certificate programs as a means of growing the department's revenues, but determined that they did not have enough faculty teaching bandwidth to accomplish this.

SLHS has yet to formalize its collaboration with University Hospital, citing leadership changes there. The self-study notes that an SLHS alum is now the hospital's director, which may turn the tide in SLHS' favor for establishing a formal memorandum of understanding (MOU) that would expand the department's presence beyond research collaborations and worksite contracts for its clinical faculty and AuD students.

Other matters flagged by the 2013 program review remain unaddressed:

- SLHS clinical faculty continue to lack pay parity with their peers elsewhere. As noted previously, the department covers more than half (58%) of its clinicians' salaries and this does not allow it to compete with market rates.
- SLHS has made limited progress in enhancing its PhD program. The department has identified major curricular gaps, including a missing communication disorders component. SLHS blames the demands of its clinical graduate programs in saying that it has not had enough time to update its PhD curriculum.
- SLHS has yet to develop mechanisms to track student learning outcomes.

Analysis

SLHS is a vital center for outreach and learning at CU Boulder. The department attracts highly qualified research and clinical faculty adept at educating the next generation of speech-language and hearing professionals. Notably, the department's graduates quickly secure employment and get to contribute to a field that serves vital public health and access needs. The department's rigorous and popular academic programs and dedicated faculty contribute much to student success as evidenced by timely undergraduate degree completions and by high satisfaction levels among both undergraduate and graduate students. In its work to pursue research and clinical excellence, SLHS positions itself as a highly collaborative organization that works with industry partners, research laboratories, educational institutions, and non-profit initiatives across Colorado and nationwide. However, despite these successes, the department appears chronically overextended. This is a situation that especially impacts clinical faculty and staff members, and the department's PhD curriculum, potentially jeopardizing its future promise.

Strategic Vision and Planning

The department's efforts seem to be singularly focused on improving its undergraduate, clinical, and certificate instructional programs, to the possible detriment of other priorities, like expanding student research opportunities, increasing faculty research productivity, and revitalizing the PhD program. The department's thinking is understandable given how student demand to enroll in the undergraduate and certificate programs vastly exceeds what the department can currently handle. The department makes an urgent case for gaining additional tenure-track and instructor lines, arguing that the department's teaching roster is substantially small compared to peer programs at other institutions. The department argues that the wisdom of gaining more faculty lines is clear, saying that the limits of the current faculty roster are impediments to students who seek to attain demanding credentials, and that high job placements across all SLHS fields present a prestigious strategic opportunity for the campus that is going unmet. The external reviewers validate this position, stating: "The need for clinical speech-language pathologists and audiologists projected by the US Bureau of Labor and Statistics exceeds the rate at which US programs are producing them. SLHS is well positioned to contribute to the resolution of these projected needs and current shortages in both professions." While increasing the size of the faculty could alleviate pressure on instructional

needs and course delivery, this approach will not necessarily address the department's other strategic challenges, including bolstering its research productivity and improving the low PhD program enrollments. Indeed, the addition of new faculty lines alone will not go far to update the PhD curriculum, which requires a different focus, including careful attention to strategic planning, to gaining the right kind of pedagogical expertise, and to reflect evolving accreditation needs and standards.

While SLHS makes a convincing case for more personnel, the department also must consider and prioritize anew how to balance between its instructional and research needs, for both faculty and students. Rebalancing might take several forms, such as acknowledging scholarship in the merit reviews of non-tenure-track faculty members, engaging pre-tenure faculty members more with PhD student recruitment and advising, and thinking strategically about how to focus one or several faculty members on the important work of PhD curriculum redesign.

Faculty and Research

SLHS relies heavily on its clinicians, especially to help with overseeing student clinical training and internship experiences. Despite their being a key to student success, the university budget for the most part does not pay clinicians' salaries; these costs are largely borne by the department and paid for with side revenues. The burden this arrangement places on the department forces it to negotiate one-year temporary contracts with clinicians. This, in turn, impedes the department's recruitment ability and has likely also contributed to frequent personnel turnover. The instability is further amplified by a disparity between what CU Boulder speech-language and hearing clinicians earn and what their peers elsewhere earn. For clinicians who might consider staying at CU Boulder, the pay disparity is doubly concerning; their salaries are also lower than those of SLHS faculty members, despite having similar instructional duties. In its self-study, SLHS notes time and again that it must prioritize hiring its clinical faculty members on multi-year contracts and paying them from continuing university general funds. ARPAC shares the department's worry, but asks, how will SLHS justify a renegotiation of its general fund budget allocation? Also, how might additional funds be distributed to address pay parity, for example, to reflect the qualifications and duties of each clinician?

SLHS is also challenged to clarify its criteria for clinical and instructor-track faculty merit increases and to emphasize possible career advancement pathways for employees in these groups. Neither the bylaws nor other policies address these needs. The lack of substantive guidance in these areas is further exacerbated by the absence of a mentoring policy for non-tenure-track faculty members. Clinical and instructor-track faculty members' contracted workloads focus on completing teaching work, and in some cases service and leadership duties. Incorporating research and scholarly work as merit-worthy considerations as appropriate could add an important metric for advancement and promotion. While the department indicates that it wants to add such considerations to merit decisions for non-tenure-track faculty members, it offers no specific details. SLHS leadership appears to be at a loss as to how to accomplish this objective. ARPAC strongly recommends that the department work first to establish a non-tenure-track faculty member mentoring policy, and then engage the College of Arts and Sciences on needs related to non-tenure-track faculty member salaries, criteria for their merit increases, and guidelines for career advancement.

ARPAC also recommends that SLHS work closely with the college to follow through on its need for an additional ASL instructor. An ASL hire would not only help fulfill a growing campus demand for ASL courses, but could potentially assist the department in expanding its new minor.

Undergraduate and Graduate Education

SLHS has a strong undergraduate program that serves to distinguish the department in laudable ways. Not only do SLHS majors graduate in a timely fashion, but they also report high satisfaction levels through the duration of their study and are actively engaged with the community and the discipline through academic societies such as the National Student Speech, Language, and Hearing Association (NSSLHA). Looking ahead, the department is aware of student needs for improved access to the ASL courses. ARPAC congratulates SLHS for its success and commends the department's commitment to continuing to strengthen its undergraduate program.

As already noted, the SLHS graduate curriculum is heavily weighted toward the needs of the MA-SLP and AuD degree programs which address a growing national demand for qualified speech-language pathologists and audiologists. The recent creation of a Master of Science

(MS) program in Speech-Language Pathology at Metropolitan State University (MSU) in Denver will inevitably pose competition for regional student recruitment as the program at MSU Denver offers lower tuition rates than at CU Boulder, as well as increased competition for securing internship sites.

Meanwhile, the department's research-focused PhD curriculum poses an ongoing concern. As outlined in the self-study:

> "A realistic view of our PhD program suggests that it is our main academic weakness at the present time. Due to the lack of a viable curriculum, a scarcity of doctoral funding, and a cohort of PhD students (five current students) that is smaller than would be expected for a nationally recognized program in our two disciplines (speech-language pathology and audiology), the department is committed to up-grade the PhD program."

ARPAC wonders how the department intends to make its PhD curriculum a priority. As is, the delivery of the MA and AuD programs, which must meet national accreditation standards, requires a heavy commitment of resources that takes momentum away from updating the PhD program. Moreover, there are too few senior faculty members with extramural funding to support PhD students on research assistantships. SLHS should reconsider its current policy that prohibits pre-tenure faculty members from recruiting doctoral students. ARPAC sees an opportunity in increasing the number of tenure-track faculty advisors available to graduate students, both to help the PhD program with gaining more students, as well as by benefiting the research productivity of pre-tenure faculty members. This policy change could also improve faculty retention rates, since CU Boulder considers graduate student mentoring a key tenure and promotion criterion.

There also appears to be some contention among SLHS faculty with regards to the efficacy of the dual/triple doctoral degree tracks that overlap the department's curriculum with those of the Institute of Cognitive Science and the Department of Psychology and Neuroscience. Because so few PhD courses are offered within SLHS, doctoral students end up fulfilling their credit requirements by taking courses elsewhere. Not only does this lead to a reduction in SLHS credit hour generation, but it weakens the PhD program's overall coherence. It is perhaps unsurprising that the current PhD student cohort is so small. A doctoral program consisting of only five students is not sustainable in the long run, and ARPAC urges the

department to revisit its PhD offerings and to make changes necessary to return the program to viability.

Postdoctoral Training

ARPAC is struck that postdoctoral researchers are for the most part missing from the department. Not only could postdoctoral researchers help with securing funding and with publishing potentially visible research, but they can also assist with mentoring graduate and undergraduate students. As the department considers how to modernize its PhD program, it will be important to include the employment of postdoctoral fellows in this calculation. Meanwhile, SLHS tenure-track faculty members should be encouraged to request postdoctoral lines in budgets submitted to external funding agencies.

Budget

As noted previously, the department covers 58% of its clinical faculty salaries from its own revenues. These revenues, which derive from the department's partnership with the Division of Continuing Education and from academic program allocations, fluctuate from year to year. Moreover, the department is allocating revenues from its departmental cost-savings generated from research-based resources (faculty member course buyouts and DAICR) to pay its clinicians and to fund research and startup costs. Not only are such revenues more ideally employed for other priorities such as graduate student support, but their uncertainty and instability is likewise untenable.

Securing a permanent funding source for clinical faculty salaries will free up much needed departmental resources, and the College of Arts and Sciences will undoubtedly play a significant role in making this happen. ARPAC recommends that SLHS works closely with the college to situate clinical faculty member salaries on a more stable footing.

Space, Infrastructure, and Support Needs

In general, SLHS personnel report having adequate space. The recent addition of air conditioning was an important improvement that furthers the department's work. Looking ahead, SLHS desires a few layout improvements that would create more privacy for its students, clients, and clinicians; as well as upgrades to its audiology booths to improve data collection and safety measure adherence. The department also seeks to gain Office of

Information Technology (OIT) support for one of its large classrooms in the SLHS Building. The department already notes that OIT does not support the audio/visual systems in its clinic observation rooms. While it is understandable that SLHS would prefer to defer equipment repair and maintenance in these rooms to technical experts, it is unclear if these issues arose due to an absence of a service agreement with OIT or if SLHS is seeking additional funding to recover such costs.

SLHS also requests support with aligning CU Institutional Review Board (IRB) selection policies with the specific subject participation needs of SLHS clinical and research projects. Recruiting appropriate participants for studies on hearing loss, developmental disorders, aphasia and speech disorders, and bilingualism warrants selection from a small and specifically targeted subset of the general population. ARPAC encourages the unit to work with the IRB and the Research and Innovation Office (to which IRB reports) to facilitate the recruitment and engagement of qualified research participants.

Governance

In its self-study, SLHS acknowledges that its bylaws fail to clearly define instructor reappointment procedures. The unit also recognizes that its bylaws permit only faculty members holding multi-year contracts to participate in departmental decision-making, or from being eligible to serve in leadership roles. This leaves clinicians, who work on single-year contracts, and who are central to the department's instructional work, disenfranchised. Clinical faculty should not be considered as less valuable to unit governance than other faculty members, even if some work part-time or off-campus. In addition to making instructor reappointment procedures clearer, ARPAC urges SLHS to revise its bylaws to provide clinicians with opportunities to take on expanded leadership roles, to take part in voting, as appropriate, and to benefit from carefully defined career advancement pathways.

Finally, SLHS should strive to improve transparency around its rule making by posting its bylaws and other governance documents online in a way that makes them accessible to all its faculty, staff, and student constituents.

Unit Culture

Owing to low participation among SLHS faculty and staff members and graduate students with the Campus and Workplace Culture (CWC) Survey, the unit's overall culture cannot be definitively ascertained. However, it can be said that a dramatic disparity exists between perceptions of the department shared by faculty and staff members, on the one hand, and graduate students on the other. For their part, the graduate students report positive perceptions of SLHS, where they say they feel welcomed, supported, respected, and do not generally experience incivility or identity-related issues. In contrast, SLHS faculty and staff members view the department's culture as disrespectful, antagonistic, and lacking a sense of community, compounded by ambiguities surrounding administrative issues such as a lack of resource allocation transparency and a perceived lack of career advancement opportunities.

Beyond reiterating the CWC survey's findings, the department self-study did not respond to what the findings said. It is therefore unclear what measures the department is taking to address faculty and staff members' negative perceptions or to improve the department's culture overall.

ARPAC urges the chair to follow through with the CWC report's recommended action plan and to provide a progress update at the time of the department's first review follow-up in 2022.

Recommendations

The members of the Academic Review and Planning Advisory Committee address the following recommendations to the Department of Speech, Language, and Hearing Sciences and to the offices of responsible administrators. ARPAC notes that some of its recommendations require resources, and the committee wishes to acknowledge that this report is being written during the COVID-19 pandemic when CU Boulder's financial outlook is uncertain. Committee members understand that recommendations requiring monetary resources might not be actionable in the near term. However, it is a part of ARPAC's responsibility to record these recommendations in its report in order to describe and document the department's needs at the point of its 2020 academic review.

To the Unit:

1. Take immediate steps to integrate clinical and instructor-track faculty as valued members of the department:
   a. Continue working with the College of Arts and Sciences to institute three-year contracts for eligible clinical and instructor-track faculty, and request budget support to defray costs.
   b. Adjust clinical faculty salaries to account for job duties, qualifications, and the number of years since the faculty received their degree.
   c. Clarify and make explicit the metrics and standards for clinical and instructor-track faculty merit increases, allowing for the differences of faculty workloads as defined in their appointments.
   d. Consider including research and scholarship as part of the workload of clinical and instructor-track faculty who request it, and appropriately attribute these contributions for purposes of merit evaluation of clinical faculty and for career advancement of instructors.
   e. Clearly describe the evaluation criteria for performance and promotion of clinical and instructor-track faculty.
   f. Modify the bylaws to extend voting privileges to clinical and instructor-track faculty as appropriate.
   g. Develop a document that clearly outlines the duties and responsibilities associated with each clinical job title (e.g., clinical lecturer, clinical scholar-in-residence, etc.). This should be shared with the clinical faculty members of the department.

2. Increase the size of the department's faculty contingent with strategic hiring measures:

    a. Work with the College of Arts and Sciences to request one additional tenure-track faculty line.

    b. Work with the College of Arts and Sciences to request one additional instructor line, either specializing in American Sign Language (ASL) or with expertise to teach other courses.

3. Revise the current departmental practice to allow pre-tenure faculty members to recruit and direct the research of graduate students, especially doctoral students.

4. Revisit the department's graduate program offerings:

    a. Complete revisions to update and expand the PhD curriculum. Acknowledging the elaborate and extensive nature such an effort would require of the department's faculty, consider requesting a faculty course buyout or seek funding to cover a semester's stipend from internal or external sources.
ARPAC will be interested in learning about the progress made in this area at the time of the first follow-up report in 2022.

    b. As the PhD program is revised, leverage the department's long-term collaborative relationships with cognate units at CU Boulder (e.g., Psychology and Neuroscience and Institute of Cognitive Science) and explore shared opportunities that provide students with expanded interdisciplinary mentoring and training opportunities.

    c. Think creatively about improving revenue from internal or external sources to increase PhD student funding. Consider using the surplus funds from the department's certificate programs to defray costs of teaching assistantships and graduate part-time instructor lines for PhD students.

5. Strengthen the department's undergraduate program by improving access to courses in high demand:

    a. Consider adding additional sections of the first or second ASL course, collaborating with other faculty members in the unit.

6. Prioritize the improvement of unit culture:

    a. Initiate a discussion with all members of the department regarding the results of the 2019 Campus and Workplace Culture (CWC) Survey.

    b. Working with the Office of Institutional Equity and Compliance (OIEC) and the Ombuds Office, develop goals to improve the department's culture.
These goals should be implemented before completion of the third ARPAC follow-up in 2024.

    c. Report the results of the next Campus and Workplace Culture (CWC) Survey, scheduled for 2021, and if applicable, outline a substantive and actionable strategy for further improving the department's culture.
ARPAC will be interested in learning about the progress made in this area at the time of the first follow-up report in 2022.

7. Work with the Research and Innovation Office (RIO) to develop new processes for recruiting a broader set of study participants. Work with the CU Institutional Review Board (IRB) to establish more flexible protocols for recruiting study participants that allow investigators to access qualified research participants from a broader net.

8. Explore options to improve information technology support for the department's classrooms, clinic spaces, and observation rooms. In accordance with existing campus protocols and best practices, determine the necessary and appropriate level of sharing costs between the Office of Information Technology (OIT) and the department; explore possible structures for providing said support (such as a service agreement, if applicable).

To the Divisional Dean for Social Sciences and Dean of the College of Arts and Sciences:

9. Work with the department to institute three-year contracts for clinical and instruction-track faculty and to cover related costs.

10. Monitor the department's efforts to update and expand its PhD curriculum. If a viable plan is not initiated by the time of the first follow-up report, consider whether the PhD program should be discontinued.

To the Vice Chancellor for Research and Innovation:

11. Work with the unit and the Institutional Review Board (IRB) to update protocols for recruiting study participants, especially to provide investigators a broader net for recruiting research participants.

To the Senior Associate Vice Chancellor for Information Technology (IT) and Chief Information Officer:

12. Work with SLHS as it explores options to improve information technology (IT) support for its classrooms, clinic spaces, and observation rooms. In accordance with existing campus protocols and best practices, determine the appropriate level of support, including to explore shared funding mechanisms.

Required Follow-Up

The chair of the Department of Speech, Language, and Hearing Sciences shall report annually on the first of April for a period of three years following the year of the receipt of this report (i.e., April 1st of 2022, 2023, and 2024) to the divisional dean for social sciences and the dean of the College of Arts and Sciences and to the provost on the implementation of these recommendations. Likewise, the dean of the College of Arts and Sciences shall report annually on the first of May to the provost on the implementation of recommendations addressed to the program.