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TITLE:

Oral health educators' reflections on teaching 2022 and beyond

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This is the author manuscript accepted for publication and has undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the Version of Record. Please cite this article as doi: 10.1002/jdd.13534.

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CONFLICT OF INTEREST STATEMENT

The authors declare they have no conflicts of interest

This project was funded by the American Dental Education Association (ADEA) Council of Sections Project Pool (2021-23).

KEY WORDS

Faculty development, faculty recruitment, faculty retention, faculty workload, dental faculty, faculty burnout, faculty well-being, teaching perspectives

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ABSTRACT

Introduction: The global pandemic prompted changes in health sciences education affecting both teaching and learning. This multi-institutional study assesses the near-term implications of these changes on faculty and faculty development. The project goals were to: 1) describe faculty experiences of teaching during the pandemic; 2) identify ways to sustain new pedagogical approaches, 3) describe the types of support faculty members need, and 4) offer recommendations to enhance oral health professions education. **Methods**: A mixed methods approach using exploratory sequential design was conducted in two phases collecting qualitative and quantitative data. Focus group participants included didactic, pre-clinical and clinical faculty in dental school (DMD/DDS), dental hygiene and dental therapy programs, and also faculty members serving in administrative roles in these programs (N=37). One hundred forty-four faculty participated in the multi-institutional follow up survey. **Results**: Focus group and survey results led to fourteen recommendations (9 structural and 5 individual) for oral health professions institutions and educators. **Conclusion**: Oral health professions education faculty were dramatically impacted by the pandemic and new faculty development needs were identified. Traditional faculty development topics and practices may be no longer applicable in the Post-COVID environment. Additionally, the pandemic stimulated creative approaches for curriculum design, teaching and assessment in oral health professions education. Strategies need to be implemented to sustain these innovations.

INTRODUCTION

As educational institutions establish new norms and move forward from the pandemic, opportunities arise to re-envision oral health professions education. The transformation facilitated by the pandemic, happened in an environment in dental education in which the need for specific changes had been already suggested for oral health education in general.[1] This experience illustrates that oral health professions educators can be stretched and respond to a changing learning

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environment. The pandemic forced oral health professions education to adapt. During the pandemic, oral health professions education institutions were early to return to in-person education likely due to the symbiotic relationship between the clinical enterprise and dental curricula and the availability of hybrid teaching models.[2,3] However, many adaptations were not sustained due to multiple factors such as cognitive and emotional overload, loss of relevance, lack of time and space for reflecting on and processing the experience, and pressures to return to pre-pandemic norms and practices.

Long standing challenges straining faculty identified prior to the pandemic were amplified. These included needs to improve faculty and staff recruitment, reduce burnout from competing academic roles, balance life-work responsibilities, and to create time and opportunities for faculty development. The pandemic unmasked strengths and weaknesses in oral health professions education, specifically in areas of faculty development, recruitment and retention in ways similar to other areas of society (e.g. leadership, social safety nets, supply chains)[4,5,6,7] While oral health professions institutions stepped up to help faculty deliver courses and curriculum similar to alternative and creative solutions in other health professions.[8,9,10,11,12,13,14] The pandemic exposed and made inherent and long-existing chronic issues more acute not just in oral health professions institutions but in health professions education in general. For example, difficulty in recruiting, challenges in retaining faculty, inadequate technology and staff support for teaching[9,15,16,17,18] and overall burnout[19,20] proved to be roadblocks to meeting the needs of the new normal.

Our project goals were to 1) describe faculty experiences of teaching during the pandemic; 2) identify ways to sustain new pedagogical approaches, 3) describe the support faculty members need, and 4) offer recommendations for positive changes to have a lasting impact on education. To address these goals, the study team identified the following areas for exploration:

1. Faculty experience with change and transitions during the pandemic
2. Faculty confidence with various teaching strategies and tools

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3. Teaching strategies and creative solutions
4. Future teaching challenges
5. Needs for faculty development
6. Resources to address challenges

These areas served to guide multi-institutional focus groups, which then informed a broader faculty survey. Study results then guided the development of recommendations for oral health professions education and educators beyond the pandemic.

METHODS/MATERIALS

The study took a mixed methods approach using exploratory sequential design and was conducted in two phases collecting qualitative and quantitative data as described below. IRB approval was obtained from all six participating schools [University of Pittsburgh: STUDY21120058; University of Michigan: IRB00000246; University of Tennessee: 22-08584-XM; University of Missouri Kansas City: 2087883; University of Illinois Chicago: 2022-0221; University of Minnesota: STUDY00015200]. Six schools participated in the first phase, however only five were able to participant in the second phase.

Phase 1 - Focus Groups

From across these six institutions a total of 37 DDS/DMD, DH, and DT faculty each participated in one of six forty-five-minute focus groups based on their primary role – higher administration (Associate Deans, Assistant Deans, program directors, and/or department chairs), clinical (2 groups), pre-clinical, didactic, and dental hygiene/dental therapy – in April-May 2022. The University of Michigan Program Evaluation Group (external to the project team) conducted each focus group and analyzed the data. Focus group size ranged from 4 to 8 participants and included both full and part-time faculty from across the six institutions ranging in teaching experience from 2 to 42 years. Focus groups were conducted via Zoom with two moderators. Conversations were recorded and

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transcribed in accordance with the IRB protocol. Based on the six areas of explorations identified by the study team, four primary questions were developed to guide the focus group conversations (see Table 1).

To analyze the focus group data, one member of the evaluation team developed a draft codebook. Two members of the program evaluation group coded two transcripts independently, then discussed the draft codes to reach consensus on a codebook with definitions and examples of all codes. After coding two transcripts using a coding comparison query in NVivo11™, the evaluation group reached an inter-rater reliability of 83% (Kappa coefficient = .83). Taking an inductive coding approach, they then identified themes and completed the qualitative analysis. Data summaries were then created by code in order to analyze concepts and themes both within each focus group and across the set of focus groups. The final analysis step identified connections across codes and extracted recommendations from their content.

Phase 2 - Survey

Following exploratory sequential design, focus group results informed the creation of a 14-item Qualtrics™ survey. This survey included 7 background/demographic items; 2 items - on pandemic impact and challenges; 4 items - creative solutions, faculty support needs, and current concerns (2 questions); 1 item open ended item for any additional comments, and was distributed to all faculty at each of five participating schools (due to logistical reasons UMKC was unable to participate). Data was collected from November 2022 to January 2023. Analysis included frequencies and descriptive statistics to explore faculty experience and intentions in a broader sample. Data were analyzed in Qualtrics™ and Excel™.

RESULTS

Phase 1 - Focus Groups

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Faculty participants shared perspectives and experiences on three main areas: teaching experience during the pandemic; educational strategies, tools, and innovations they used and hoped to continue using; and ideas for support needed moving forward including faculty development. Based on participants' shared perspectives and experiences four themes were identified in the analysis and characterized by the external evaluation team as 1) Pandemic Experience; 2) Teaching Challenges; 3) Teaching Innovations; and 4) Support Needs.

Pandemic Experience

The word *change* best describes faculty's pandemic experience. Schools had to pivot quickly in an unprecedented way as the following comment illustrated: "We had a weekend to get our curriculum online, so we went with Friday off in March, and then the following Monday, we were online via Zoom which nobody had ever heard of until then." The main areas of change were COVID-19 safety, developing new protocols, ensuring protocol compliance, and dealing with constant uncertainty exemplified by the following quotes:

> "But there is still this unknown – how long are we doing this, how effective is this going to be?"

> "It also required a lot of energy to be very flexible and nimble."

> "...it changed again, and we had to actually have two plans every term depending on what was going to happen, so we had to map our curriculum out to have a backup plan in place so the uncertainty for students, and for us, for faculty was pretty constant."

> "I felt that when I felt that I had everything figured out it changed unexpectedly. And when I thought 'okay, I've got it' - then I didn't."

Teaching Challenges

Predominant challenges identified by faculty were the quality of education, student comprehension, and the clinical experience: *"But I just don't think the students graduating this year are the same as*

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previous years, I really don't know how to fix that." Remote and hybrid teaching and transitioning to in-person classes created additional challenges: "*Trying to understand how zoom works and you're still trying to teach in the new system, while learning the system, and trying to guide the students to use the system too, so there was that in between learning curve that was there that the faculty had to go through*". Faculty identified concerns about readiness for practice and readiness for oral health professions education for entering students: "*I guess one of my questions, going through this process is now the new incoming students, what role does their experience and their pre-req courses during COVID, how's that going to impact their readiness for our program…"* Figure 1 illustrates the relation among discussed challenges.

Innovations

From increased online resource use to shifting the teaching mindset, faculty were creative, appreciated flexibility, and improved their teaching. Faculty modified and reflected on their teaching process more: *"One thing that surprised me is how much more thoughtful I became in what I was doing. I really feel like our faculty were much more intentional in terms of their planning for their teaching. So much of what we do I think sometimes is muscle memory"* and "*I'm excited about the fact that we can actually deliver*

content in multiple ways." Some faculty thought their adaptations improved their teaching: *"I think we got creative and there have been some advancements made with that shift that we made that I'd kind of like to see us continue as an adjunct to clinical instruction, so we prefer to add rather than replace clinical instruction."* Finally, faculty appreciated the need to practice creatively and use innovative technologies that will continue in the future. Figure 2 summarizes faculty innovation areas

Support Needs

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Hiring additional faculty, staff, and IT support was a top-mentioned need, with a total of 28 mentions across all three groups as evidenced by the following quotes:

> "We need more faculty on the clinic floor, so one of our biggest needs is not enough bodies to cover the clinic"

> "IT support [is also one of our biggest support needs]. It's been very overwhelming. I'd like to see more IT individuals, to see that they become a more numbered body. But you know they're in demand all over the place."

Faculty saw new dental colleges or universities as an additional challenge for hiring: *"Yeah, we have several new schools that are opening up in our part of the country.... [The faculty pool is] getting more diluted and that just complicates more problems."*

Faculty also recognized the need for mentoring, protected time for and peer support for teaching:

> "I think, having that support, that if any new faculty joins, one of the overwhelming tasks of how to develop a course, so what do I do and how to go about that - I think having a faculty mentor would be the bigger piece."

> "I like technology and stuff but if I'm going to learn and need to use technology, I need some guarded time in my schedule."

> "It was good that we had a lot of support here from the other educators … and then and then eventually we came up with a peer review of online teaching, which I think has been very helpful … evaluating what we're doing and seeing if it's helpful, … not only just student feedback but faculty feedback and going there."

Faculty mentioned several ways institutions could support their professional development, including protected time to participate, offering training on various new tools and technology, offering training for best teaching practices, and general funding. Many faculty members put off their own development during the pandemic: *"My personal scholarship and development definitely has been*

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on the back burner in the past 1-2 years due to the teaching demands." Having (or hiring) a dedicated leader in faculty development (i.e., as Assistant or Associate Dean) was viewed as a way to build trust between faculty and the institution and at one institution it was highlighted as a positive step: *"So we got an Assistant*

Dean for Faculty Development right at the beginning of the pandemic and which has just been a great

resource." On the other hand, some recognized the new need for faculty development necessary for utilizing technology for practice and education: "*Because I was at home for four months, my department chair encouraged me to create a teledentistry continuing education course because I already had experience using it in industry*." Additionally, increasing collaboration between faculty, across universities, and sharing opportunities for faculty development was suggested as a way to offset faculty shortages. Figure 3 summarizes faculty support needs.

Phase 2 - Survey

A total of 144 faculty including those with l administrative roles across five schools responded to the survey from November 2022 to January 2023. This response reflects 10% of the total faculty and educational administrator workforce at these schools. Responses from schools ranged from 3% to 24%. The highest number of responses came from faculty identifying clinical teaching as their primary role 71 (49.3%; N=144), and 108 (78.3%; N=138) were full time faculty. Respondents taught in multiple programs with most in pre-doctoral areas and included advanced education, graduate programs, and allied health. Clinical sciences were the strongest represented with 91 responding (68.9%; N=132), and 91 (65.9%; N=138) had over 10 years teaching experience. Table 2 details respondent demographics.

Pandemic Experience

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Faculty reported ways and relative impact the pandemic had on their teaching. The top three were 1) developing new plans and protocols, 2) keeping yourself and others safe, and 3) dealing with constant uncertainty (see Figure 4).

Challenges

Respondents were asked to identify their top three challenges. Results showed the greatest challenges were student educational experience (67 respondents), increased faculty stress and burnout (61 respondents), missed opportunities for student engagement (52 respondents), and reduced clinical experience (46 respondents).

Innovations

When asked about their own creative solutions, teaching creativity (97 respondents) was the area of the most innovation followed by student engagement (79 respondents) and assessment (61 respondents). Considering if they would continue with these solutions, 79% would continue their teaching solutions, 71% planned to continue solutions around student engagement, and 64% felt they would hold onto assessment solutions. Many respondents shared examples centered around technology for example using Learning Management Systems (Canvas™ and others), Zoom™ including breakout rooms, annotation, and polls, virtual patient visits/telehealth, and online courses.

Support Needs

Participants were instructed to select all that apply when asked about the support they needed as faculty. One hundred thirty-eight participants responded to this question (N=138). Sixty-seven respondents (48.5%) identified staff support for technology as a need moving forward. This was followed by increasing faculty to share responsibilities (63; 45.6%), time to participate in professional development (60; 43.5%), institutional/leadership support for faculty development (59; 42.8%), faculty development for teacher training (57; 41.3%), staff support for teaching (49; 35.5%). and mentoring (33; 23.9%).

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Additional faculty comments included current concerns and pressure to return to pre-pandemic practices. Primary concerns shared related to *student preparedness* and *student engagement and expectations*. Several identified burnout, mental health, and wellness as a concern for students, faculty and staff, and the pressures associated with changing and reduced workforce (faculty/staff).

DISCUSSION

Our findings align with suggestions in the literature on addressing workplace burnout. [21,22] While often traditional help aims at the individual level, there is recognition that burnout must be addressed structurally at the institutional level as well. Survey findings indicate that many oral health professions education faculty perceived a need for their school to address factors that contribute to burnout such as addressing faculty shortage and adequate support for teaching and technology. The solutions to these burnout-associated factors require major, school wide, programmatic changes that are beyond the control of individual faculty members .[21,22]

The following **structural change** recommendations are based on our interpretation of the focus group and survey data:

- Hire more faculty
- Continue to embrace and encourage instructors' flexibility and creativity
- Provide time for instructors to participate in professional development
- Provide basic online teaching training opportunities
- Ensure instructors have access to teacher training
- Work with faculty to improve and clarify accreditation reporting
- Hire additional IT support
- Ensure leadership serve as resources for faculty development
- Collaborate with other institutions to increase clinical outreach opportunities

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Five additional recommendations suggested by the focus group data relate to **individual changes:**

- Use synchronous and asynchronous teaching for remote learning
- Continue to embrace flexibility and creativity
- Share best practices and give each other feedback
- Implement and develop teledentistry clinical practices
- Encourage teamwork in clinical practice

Focus group and survey participants expressed concerns about perceived lack of support for teaching and educational technology. Burnout[21,22] among faculty may be influenced by lack of faculty and support staff to cover teaching and clinical responsibilities, dysfunctional workload due to these workforce shortages, and inadequate time for professional development. All of these factors may influence faculty satisfaction with academic life and contribute to difficulty in retaining faculty members. Similar issues have been identified in oral and other health profession education including burnout,[19,20] support for teaching and learning, lack of recognition, lack of professional development for staff who support teaching,[9] a need for improving the quality of virtual faculty development[15] and online teaching,[16] more robust training in technology,[17,18] improving research productivity and teaching effectiveness,[17] and productivity gap between genders.[23,10]

Our results show that faculty are devoted to innovative and creative teaching solutions (79%) and find ways to increase student engagement (71%). Additionally, participants are also committed to new assessments and assessment strategies (64%). The pandemic pushed health profession schools to explore new approaches to deliver faculty development;[24.,25] examples reported the literature include virtual cafes at the departmental level,[8] global webinars with mini presentations reaching 5 continents offering just in time learning,[9] high quality virtual conferences,[10] (re)discovering and utilizing resources from other units such as technology training from the library,[11] recognizing K-12 teaching strategies as resources for effective teaching[12] and utilizing partnership with students as a faculty development method.[13,14]

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All these require institutional support for major faculty development efforts and faculty affairs initiatives in areas such as micro-credentialing and local leadership training. Our data showed a craving for more robust faculty development and mentoring programs coupled with capacity and time to participate. Specific suggestions from the study participants include in-house faculty development leadership at the associate dean level. Additional study team recommendations include, considering flexible work agreements despite the trend of "call back to the office," creating a more inclusive environment for faculty at external sites to participate in meetings, opportunities for telehealth/teledentistry, and structural solutions for work-life balance to combat burnout. These in turn would mitigate the hiring challenges for staff and faculty that oral health professions institutions are facing.

The impact of the COVID pandemic on core curricular functions demonstrates the pertinence of the 2017 assessment of the state of dental education [26] and identified as overdue in the 2023 ADEA's New Thinking for the New Century Chair of The Board of Directors Symposium. Solutions include improving faculty and staff recruitment while reducing burnout, creating opportunities for leadership development, and preparing students for collaborative practice. Identifying new creative ways of thinking to approach these challenges is essential for moving forward.[27,28] The current study provides the corresponding faculty perspective in a multi-institutional context, lays out the roadmap on "the how to," and goes beyond the needs identified in the early stages of the pandemic.[29]

Limitations & Future Directions

Limitations include possible selection bias; those who are more likely to continue practicing creative solutions are more likely to participate in the survey. The composition of the respondents weighs heavily toward clinical faculty; however, this reflects the general composition of oral health professions faculty and curricula.

These results offer a first step into exploring how oral health professions education has changed to promote new educational approaches. Looking forward, one way to sustain teaching innovation

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could include structural support for faculty development including dedicated personnel for faculty development and teaching support within the oral health professions programs. The pandemic showed that it is possible to break from established models, and thus the oral health professions education community needs to examine to what extent it can embrace it.

CONCLUSION

The impact of the pandemic on faculty and the continuing uncertainty that naturally arises in healthcare settings suggests the need to revisit faculty development practices frequently and to adapt them for changing educational environments. The focus group and survey results make it clear that oral health professions institutions locally and the profession as a whole nationally must assess what changes are essential moving forward, how to sustain them, and what support is needed for success. To support oral health professions education, the profession needs to invest in faculty development that can have a direct impact on training future oral health care providers. We must listen to the needs that our faculty have identified. It is imperative to keep the momentum and sustain the positive effects from the pandemic that put creative forces into motion.

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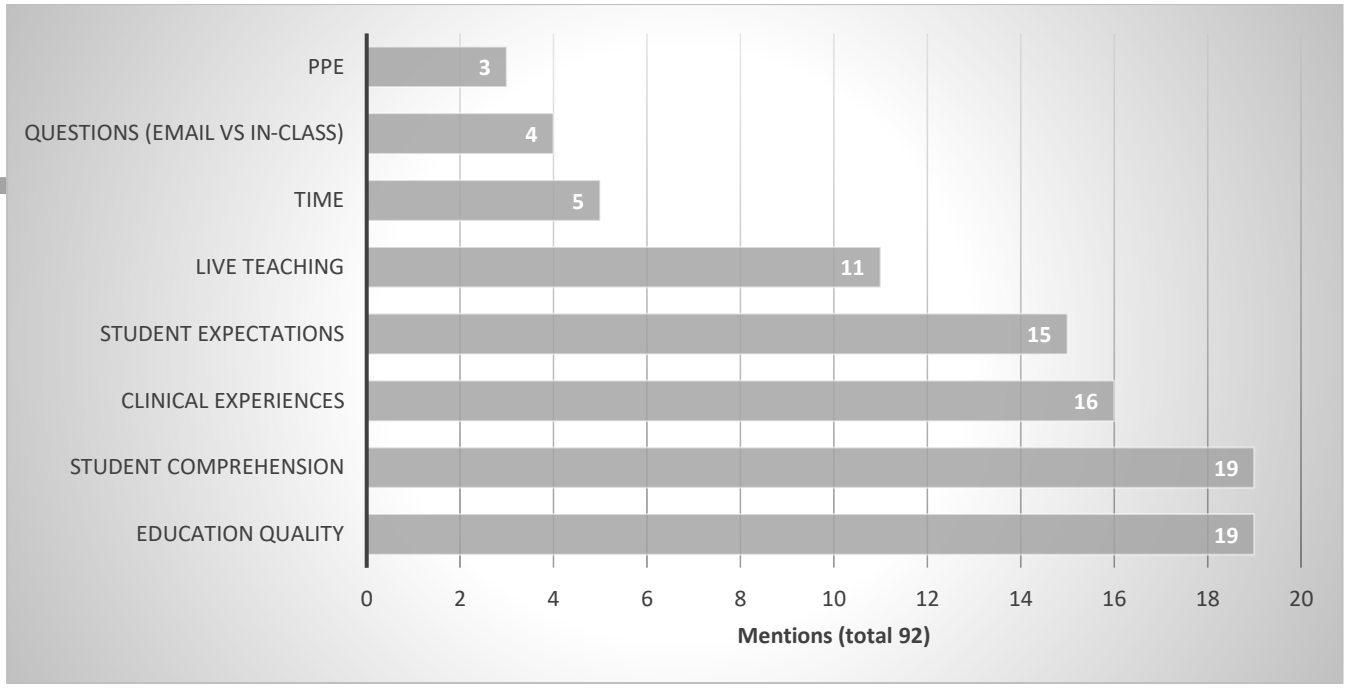
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Figure 1 –Teaching Challenges

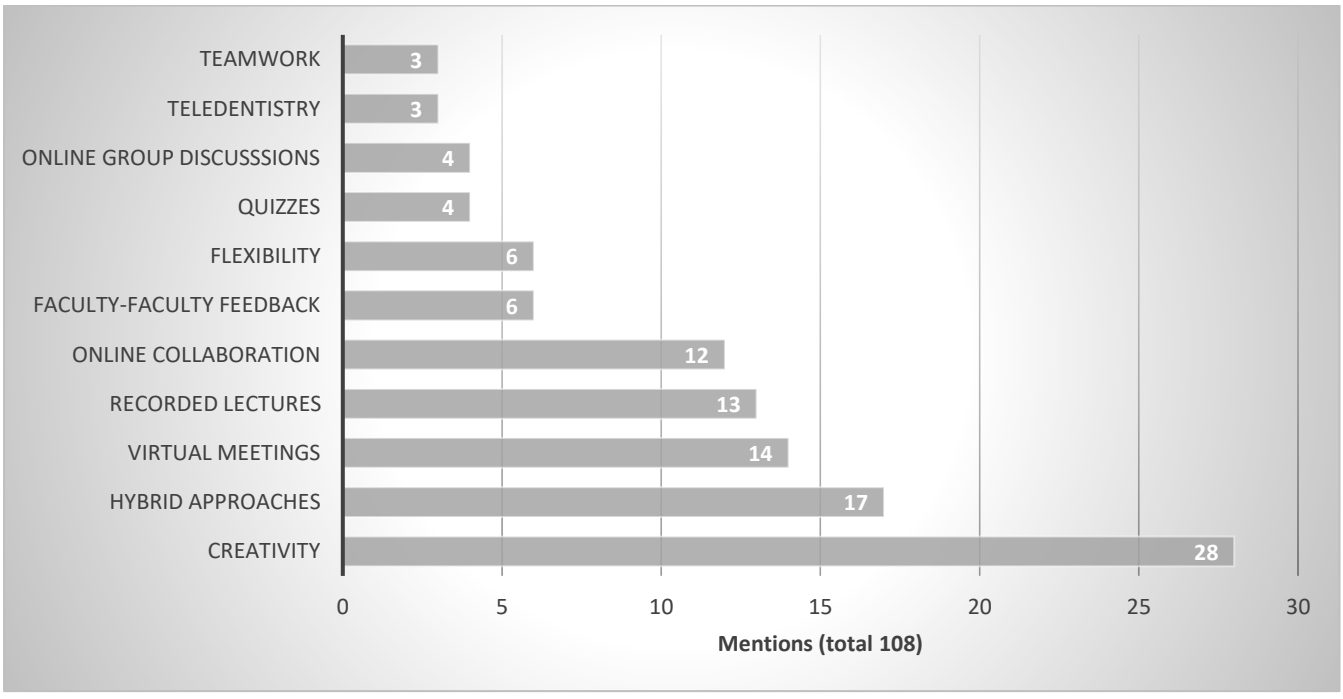
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Focus group mentions about the most significant teaching challenges

Figure 2 – Teaching Innovations

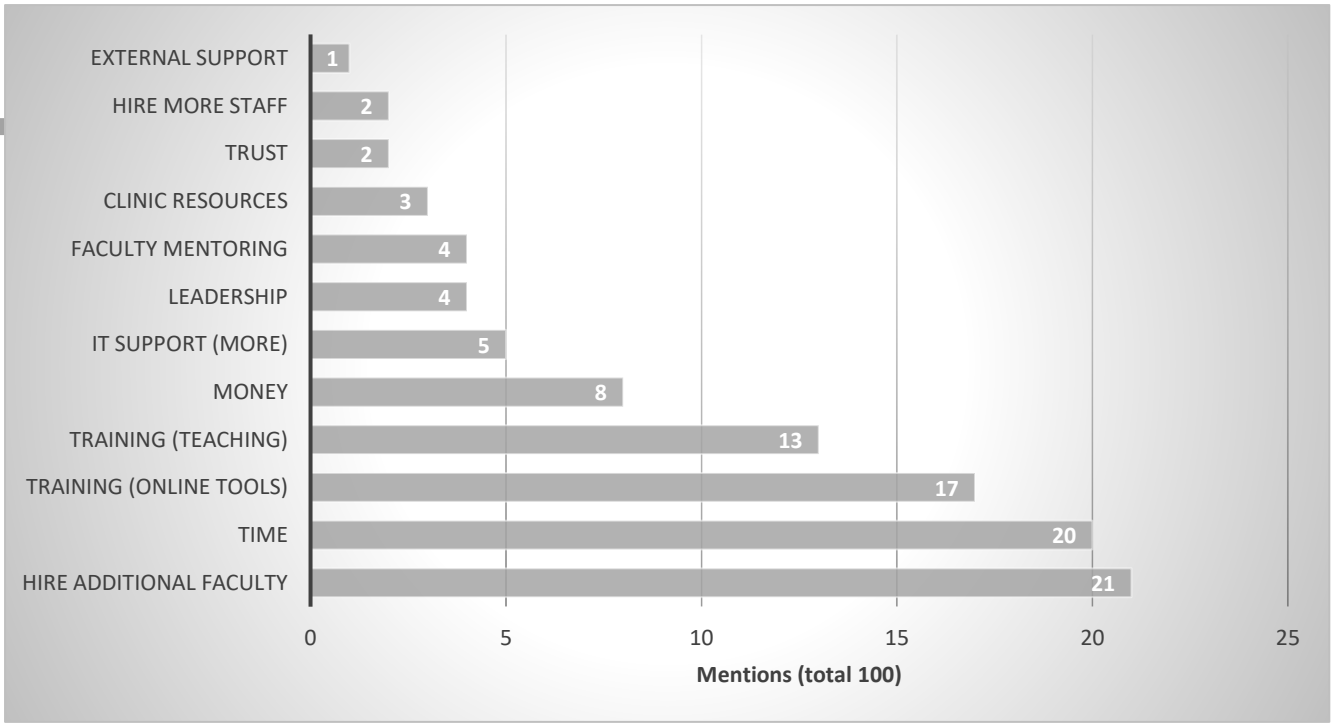


Focus group mentions about teaching innovations

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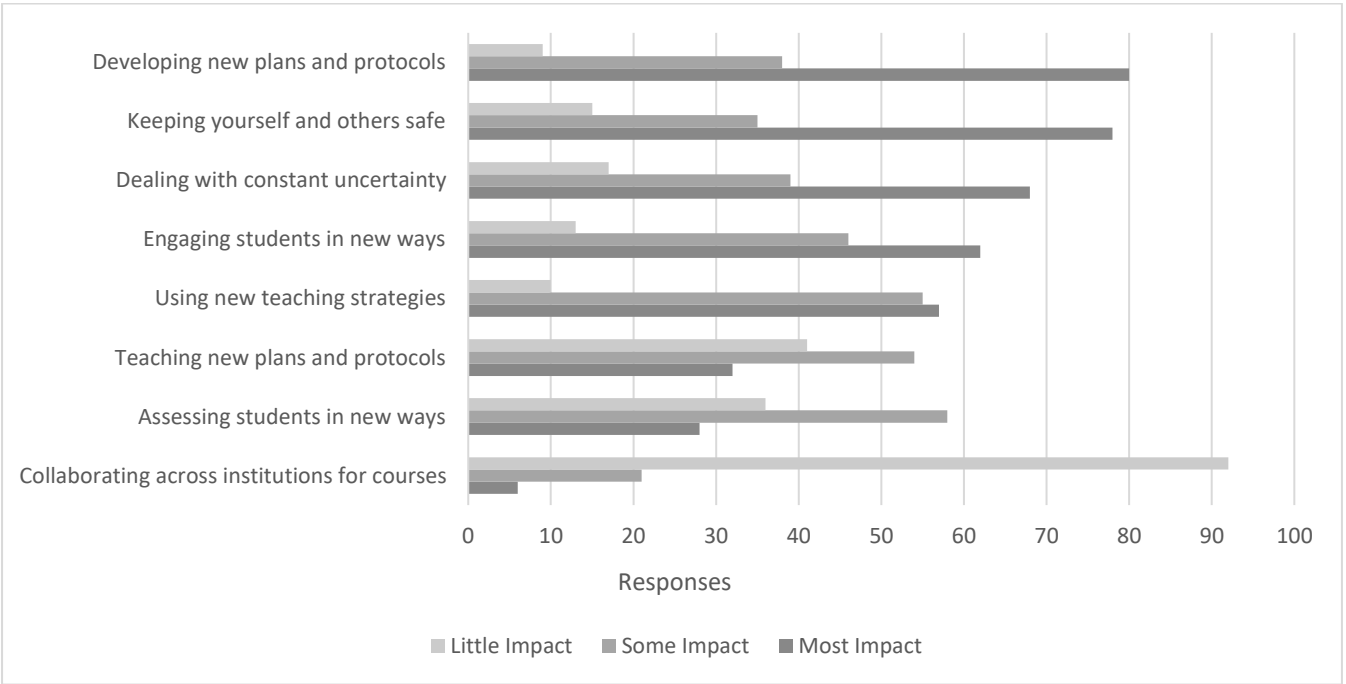
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Figure 3 – Support Needs



Focus group mentions about teaching support needs

Figure 4 - Pandemic Experience - Impact on Teaching



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Table 1 - Focus Group Questions

Focus Group Questions
1. Teaching during the height of the COVID-19 pandemic over the past two years has required transitioning and pivoting in terms of the way you have been teaching. What was this experience like for you?
2. In terms of teaching strategies and methods, what are your most significant challenges or concerns moving forward/entering a new phase, and what resources would be helpful to overcome (x challenge/concern)?
3. In terms of teaching strategies and methods, what are you most excited about right now?
4. In terms of teaching strategies and methods, what are your current needs for faculty development?

Table 2 – Respondent Demographics

Perspective - Primary Teaching Role	Responses (Percent) N=144
Clinical	71 (49.3%)
Didactic	47 (32.6%)
Preclinical	13 (9%)
Other	13 (9%)*

*includes administration, research, and uncommitted

Dental Education Area/Program *	Responses
Advanced Education/Residency	48
Allied Health	28
Predoctoral	107
Graduate Programs (MS, PhD etc.)	37
Other**	4

*multiple responses possible
**includes CE, IPE, and Administration

Primary Discipline	Responses (Percent) N=132	Teaching Experience	Responses (Percent) N=138
Behavioral Sciences	12 (9.1%)	0-3 years	15 (10.9%)
Biomedical Sciences	22 (16.6%)	4-6 years	11 (8.0%)
Clinical Sciences	91 (68.9%)	7-10 years	21 (15.2%)
Multiple/Other	7 (5.3%)	more than 10 years	91 (65.9%)

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