Introduction

The COVID-19 pandemic impacted all levels of society worldwide. The literature provides lessons on how schools and higher education institutions cope with disruptions and challenges. With limited access and lockdowns in most places in 2021, teacher preparation programs found the situation problematic in getting their students complete onsite practical experiences such as practicum, internship, and student teaching.

The researcher wondered how different institutions in other countries cope with the rapidly changing scenario caused by the pandemics. Also, he asked questions on how faculty members, students, and administrators used technology to support teaching and learning practices. In reaching out to individuals for answers, he collected thoughts and stories that provided snippets of understanding of what happened during the pandemic.

This paper attempts to provide a snapshot of experiences and challenges during the pandemic's second year. It describes and discusses actions and responses to the pandemic by teacher education programs in higher education institutions in India (Joshi, Binay & Bhaskar, 2020), Namibia (Boer & Asino, 2022), Nigeria (Eze, Sefotho, Onyishi, & Eseadi, 2021), and the United States (Leech, Gullet, Cummings, & Haug, 2022).
Methodology

Based on the written narratives and conversations with four participants from other countries and the United States, the researcher described what they saw and heard as they managed the impact of the pandemic on their university’s teacher education programs. The descriptive study inquired about the use of technology, the challenges of teaching, and changes in program policies.

Using a snowball sampling strategy, the researcher recruited faculty members in teacher education programs in several countries, including the United States. As a non-probability sampling technique, the method uses existing subjects to provide "referrals to recruit samples required for a research study" (para #1). However, instead of starting with one subject, the lead author/researcher solicited information from a source and identified other individuals. A potential participant received an invitation to participate.

As a sampling technique, snowballing "can be extensively used for conducting qualitative research, with a population that is hard to locate." The researcher informs the individuals identified that the information shared would be reported in a publication. Researchers first need to develop that kind of rapport with the participants, agreeing to the potential of being identified as an individual or group. The sampling technique might require more time to complete. The researcher analyzes the data of feedback and opinions after receiving them from the respondent. The data collected can be qualitative or quantitative and represented in graphs and charts.

Data Collection

For the data collection, the researcher used a recruitment strategy similar to snowball sampling. After connecting with several teacher education faculty, the researcher recruited nine individuals from seven countries to participate in the project. In providing structure to the data collection, the participants received a set of questions categorized into eleven inquiry areas.

1. Degree program information
2. Curricular content knowledge and skills
3. Instructional framework or pedagogical approach
4. Recruitment and admission
5. Student population
6. Graduation requirements
7. Faculty background
8. Technology use and practices before and during the pandemic
9. Challenges to teaching before and during the pandemic
10. Program policy changes

After the initial collection, four of the nine participants responded to the set of questions. The participants came from India, Namibia, Nigeria, and the United States. Half of the participants identified as male, and the rest as female.
Using a table created in a Word application, the researcher typed in the responses collected from each participant (Column) for each area (Row). Once the transfer of information from word documents to a table (see Figure 1), the researcher scheduled a meeting with each respondent to review the summary of responses given the questions for each area of inquiry.

Figure 1. Example of a Table Format Used to Prepare Data Collected for Analysis

<table>
<thead>
<tr>
<th>Participant</th>
<th>Country of Location</th>
<th>Data Supporting an Area of Inquiry</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>India</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Namibia</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Nigeria</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>USA</td>
<td></td>
</tr>
</tbody>
</table>

The meeting with participants allowed the researcher to confirm the accuracy of the data collected. Also, the researcher had opportunities to ask clarifying questions related to interpreting the narrative given contexts not initially included in the written responses. After completing all meetings with the participants, the researcher made edits and additions to the initial written submissions.

**Data Analysis**

For each area of inquiry, the researcher created a table containing the responses of each individual representing a country for eleven tables. The researcher used content analysis as a strategy to code the contents of each table. The coding of the narrative from the participants provided opportunities to identify significant themes and similar patterns across the four data sources in a given area of inquiry.

After analyzing themes and patterns, the researcher chose which area to report. Initially, there are eleven areas of inquiry. Still, for this paper, the researcher focused on the teacher education programs' goals and instructional focus and how they responded to the pandemic using technology to support delivery. Also, the paper included a discussion of policy changes made in response to the impact of the pandemic.

**Findings**

Based on participants' responses to the inquiry, the researcher used summary tables focusing on the six areas of inquiry to facilitate understanding of the results. Three summary tables focused on the degree program, curricular content knowledge and skills, and instructional framework or pedagogical approach. The remaining tables presented a narrative about the impact of the pandemic, such as technology use and practices, challenges to teaching, and policy changes. The paper highlights the significant themes found in each area of inquiry.
Degree Program

The researcher asked participants to describe their institutions' teacher education programs (at least one). All participants reported that their institutions deliver a teacher education program. However, the degree offerings differ from each institution. Participant A said those who want to teach must pursue a second-degree focus on teacher education. Other participants (B, C, D) reported that students completed only one degree in education to become educators.

Most degree programs reported (India, Nigeria, and the USA) that students have options of teaching from a select block of different subject areas. Participant B (Namibia) mentioned that this was not the case for the university. Participants reported that their program curriculum includes content focusing on diversity issues and skills for adapting to changing situations. However, the emphasis varies across institutions.

Most participants reported that students can choose to take partially or fully online courses, except for Participant B (Namibia), saying that class offerings are still in face-to-face mode. The program's completion time pointed to four years. However, the time taken to complete the degree can vary by student, depending on individual progress or credits transferred, if applicable. Finally, three participants have similar starting dates for their academic year except for Participant A (India), which starts school in January.

Curricular Content Knowledge and Skills

The teacher education program curriculum seems to vary across participants' institutions. A report from Participant A stated an extensive amount of curricular content covered in four semesters. Other participants reported that their curriculum coverage does not have the same issues that Participant A wrote. Two participants said that their curriculum includes teaching the use of technology to support student learning. Most programs focused on preparing teachers to teach in subject areas. However, Participant D described that the program chosen to write about has a curriculum focused on special education. Finally, Participant B shared that during the COVID-19 pandemic, the university created the current curriculum to mitigate the negative impact on the educational system.

Instructional Framework or Pedagogical Approach

Participant A (India) reported that the teacher education degree program focuses on developing the core teaching skills and competencies of post-graduate students. The university modeled the program on Outcome Based Educational (OBE) practices and the revised taxonomy of Benjamin S. Bloom. Participant B (Namibia) reported that the current degree program resulted from the work completed by instructional designers and curriculum developers. Participant C's degree program uses a school community-based approach. Finally, Participant D shared that the degree program requires admission to the teacher education program first before students can enroll in professional education courses. The students must meet the certification assessment required by the State's Professional Standards Commission.
The instructional framework used by the various degree programs considers developing students' skills in working in face-to-face or online settings, given the COVID-19 situation. However, Participant D's degree program, specifically the Special Education program, centers around acquiring skills in delivering teaching methods in all modalities: online, hybrid, and face-to-face.

Participants reported that their degree programs include field experiences before graduation. The in-field experiences could take the form of teaching in a public school (similar to student teaching) and completing an internship. The length of time to complete these field experiences varies across programs. However, Participant D conveyed that teacher education students completing field experiences received supervision from qualified cooperating teachers who evaluated their classroom performance.

Technology Use and Practices Before and During the Pandemic

Participants reported changing their teaching practices during the pandemic due to the university closing, access to physical space, and Internet connectivity issues. Many institutions were forced into a new situation regarding teaching remotely and had to experiment with technology and use whatever technological skills they already possessed. Participants A reported that the program started online classes and provided training to faculty and students on using various technology-based tools, such as Google Classroom, Google Meet, TeachMint, and Webex, among others. Participant B’s university provided students with modems with data to use. Training opportunities mushroomed for learning how to use Zoom, Skype, and Google Meet in teaching. Participant C reported that the faculty and students at the university had a more challenging time adjusting.

Participant D stated that faculty members' attitudes toward teaching and technology seemed far more positive. The pandemic highlighted the need to find innovative ways to increase collaboration and networking and seek solutions to problems. Faculty used creative problem-solving to include virtual break-out rooms to allow students the opportunity to collaborate. Faculty and students faced many challenges transitioning to virtual learning due to the pandemic. However, in the department, there was significant use of technology before the pandemic, which made the transition much less challenging.

Challenges to Teaching Before and During the Pandemic

Challenges in teaching with technology are not new. However, the pandemic's impact on communities, especially those involved in education, caught everyone off-guard. A significant challenge focused on the lack of preparation or readiness in using technology to support teaching and learning. Faculty members and their students have limited knowledge and skills to use technology. Participant A (India) shared that the lack of know-how to design learning experiences and online assessments hindered faculty members. Also, a related barrier to teaching surfaced involving one's inability to integrate technology tools and digital resources into the curriculum. Participant B identified other faculty training issues with teaching online, such as the ineffective use of web-based applications (e.g., Zoom, Google Meet, and Skype) to support online communication and interaction.
Poor Internet connectivity is a common refrain across participants' narratives. During the pandemic, challenges to teaching included the internet going down, apps freezing while teachers were teaching, and limited computer ownership, as some could not afford one.

The lack of access to technology devices contributed to the problem (Participant B). The situation contributed to the apprehension in transitioning towards emergency remote teaching (Participant C). On the positive side, Participant D reported that faculty and students were comfortable and confident in the virtual format, attributed to the technology-rich activities provided before the pandemic.

Participant D reported other challenges to teaching during the pandemic, including the need to identify additional classroom spaces for high-priority face-to-face courses and marking furniture with masking tape to indicate unusable seating, given social distancing requirements. Also, the inconvenience of wearing a mask or appropriate face-covering on campus and having to notify the health center to schedule a virtual appointment if showing symptoms of COVID-19 created a sense of imbalance in daily activities.

Program Policy Changes

Many higher education institutions changed the delivery of their teacher education degree programs, given the changing situation brought about by the COVID-19 pandemic. For Participant A, the university provided e-learning courses, e-learning platforms, and virtual tools training. Also, the faculty received encouragement to teach online and design syllabi with technology utilization, pedagogy, and practical application elements. Additionally, the faculty created virtual classrooms with evaluations and assessments administered online.

For Participant B, structural changes happened but not due to the pandemic per se. The university administration made the policy changes and eventually impacted the teacher education program. Similarly, Participant C mentioned that the policy changes required the faculty to use information and communications technology (ICT) in the classroom. Further, with the recommendations of the National Universities Commission (NUC), the government provided training to meet the ever-evolving needs of using and integrating technology to support teaching and learning. Finally, Participant D shared that the degree program developed an online option that allows students to pursue a high-quality education while fully employed.

Discussion

The findings included descriptions of degree programs, curricular content knowledge and skills, and instructional framework or pedagogical approaches. The researcher expected to find program types, curriculum focus, and instructional orientation variations. A response from Participant A about degree programs stood out because the students have completed their undergraduate degrees in specific disciplines and are returning to become educators. The program focuses on curriculum development and teaching skills toward degree completion. Other countries allow students to take significant teacher education courses after completing the general education curriculum. The students in Participant A's program have the advantage of an earned undergraduate degree in a specific disciplinary content (e.g., English, Math, and Science) before
pursuing a second degree in teacher education. In contrast, Participants B, C, and D allow students to pursue teacher education at the undergraduate degree level.

Another finding focused on how each program managed the impact of the pandemic. Participants’ written responses seem to say that their actions depend on available and accessible technology and resources. One teacher education program integrated technology into all courses before the pandemic, while the rest did not. The findings point to the struggle of these programs to connect their students online and transition to emergency remote teaching.

Finally, the researcher found that all participants experienced challenges in delivering the programs remotely or at a distance during the pandemic. Lessons learned from these narrative responses point out several things needed for faculty, students, and administrators to get up to speed in making their program viable. The participants seem to agree that there is a need for continuous training in using and integrating technology, stable Internet connectivity, affordability of technology devices, and accessibility of digital resources to support teaching and learning activities.

**Conclusion**

As an exploratory study, the researcher sees the potential for expanding knowledge on how teacher education programs beyond the United States have managed the impact or disruption created by the pandemic. Based on the initial analysis of the data collected from four participating individuals in different countries, it looks like the programs are making adjustments based on stakeholders' needs. However, the change process for the better seems to be moving at a slower pace, given the lack of infrastructure to facilitate online or blended teaching and learning activities. Further, participants identified the need for more faculty, students, and support staff training. All stakeholders must be ready once a higher education institution embarks on an alternative delivery mode beyond the face-to-face format.

In retrospect, the researcher believes in sharing practices, challenges, and innovative solutions to changing the higher education landscape, especially in teacher education programs. Knowing what is happening in other places is critical to adapt or perish from the deluge of challenges for those who are unprepared. Those who graduate from a teacher education program must equip themselves with knowledge and skills to respond to the changing educational environment brought about by current and emerging technology tools, applications, and resources. Also, they need to learn new and creative instructional approaches, given the diversity of student characteristics and capabilities.

The descriptive study is just a beginning effort to capture the actions and responses to the pandemic by those engaged in preparing teachers as professionals in the United States and abroad. It is an effort to document similarities and differences in practice and response to the pandemic with the existing contexts and demographics. The researcher plans to expand the number of study participants to understand how teacher education program faculty and administrators design and develop strategies and solutions for a better learning experience for would-be educators at all levels and disciplines.
References


