Teacher Futures: Global Reaction to Teacher Shortages in Rural Locations

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Abstract

Upcoming changes in the teacher labor supply will have an impact on nations that provide government-based education for their youth. Faced with a significant global shortfall of educators, most countries have taken steps to incentivize teaching as a profession and ensure that qualified teachers are available to students in all locations – particularly in rural environments. To understand these initiatives more thoroughly, a short-term policy analysis focused on incentives for teacher labor through a lens of governmental policy implementation has been completed. This resulted in a review of the efforts three nations (Australia, the United States and Zambia) have undertaken to ensure a viable and consistent teacher workforce in rural areas. While each nation has specific factors that contribute to current and projected shortages, each also provides unique solutions to assist in resolving this ongoing issue. Through the examination of multiple hiring factors and incentives used in each location, a better understanding of the specific challenges and strategies employed to secure a viable teaching workforce has been developed. Outcomes related to this policy analysis showed commonalities in the lack of developed strategies to prepare rural educators to address teacher shortages in more remote regions. In addition, while education leaders in each country continue to publicly call for additional support for rural teachers – very little legislation or policy implementation has been enacted to bolster this subsection of public education in any of the specified nations. Additional discussion about the long-term concerns regarding rural teacher supply and student equity is also developed.

Keywords: global education, incentivize teaching, rural education, teacher shortage

It has been made clear that a primary factor, if not the most important component, of effective learning for students is directly related to the effectiveness of the classroom teacher and the community of educators that interact with individual students (Carroll & Foster, 2010; Metzler & Woessmann, 2012). Without a qualified and effective teacher, student achievement is limited – leading to reduced student academic achievement (Stronge, 2010). The role of the teacher is essential in the development of strong learning opportunities in the classroom. Yet, there is growing concern about the viability of providing qualified and talented teachers and educators to schools around the world (Ingersoll et al., 2018; Sutcher, Darling-Hammond, & Carver-Thomas, 2016).

During the last forty-years, there has been a discernable shift in the educator labor market as, in many instances and locations, fewer individuals have elected to pursue careers in classroom teaching (Zarra, 2019). The challenges facing schools and governmental organizations in relation to locating, developing, and retaining qualified educators continues to be difficult in many parts of the world. The United Nations has estimated that 69 million new teachers will need to be developed in the next decade (UNESCO, 2016). In many countries, teacher shortages are impacting student instruction – particularly in hard-to-staff content areas such as secondary science and secondary math (Cross, 2017).

This study looks at three specific nations and their ongoing efforts to attract new individuals into the education profession, particularly for more difficult-to-staff positions in rural regions. Rural schools are a particular focus, as they are typically the first institutions impacted by educator shortages. This is especially true for schools in very remote locations. Within this context, the shortages existing in rural schools can be seen as a potential precursor to emerging teacher labor shortage issues that will eventually impact urban and suburban schools. Through this examination of three distinct nations, a greater understanding of the global magnitude of this problem can be explored, as can emerging solutions for this international concern.

Existing Research

The impact of the teacher on student achievement has been a primary area of study for many years (Rockoff, 2004; Stronge, 2010). In rural schools, where teachers maybe the primary educator for a subject for multiple grade levels, teacher quality becomes even more important (Jenkins & Cornish, 2015; Taole, 2014). Understanding the unique challenges rural school districts and rural hiring entities have in recruiting and retaining quality educators has resulted in new knowledge regarding best-practices, but a comprehensive solution to this ongoing problem remains elusive (Bouck, 2018; du Plessis & Mestry, 2019).

In contrast, there is extensive research available regarding ongoing teacher shortages, challenges in recruiting teachers, and the potential impact these shortages can and will have on the global economy. Many studies focus on the unique approaches individual schools have taken to help recruit and retain teachers - some with moderate success (Arinaitwe & Corbett, 2022; O'Doherty & Harford, 2018). Other areas of inquiry have centered on general trends in securing teacher labor (Balter & Duncombe, 2008; Mngomezulu, Lawrence, & Mabusela. 2021), hiring international teachers (Ingersoll et al., 2018; Kissau et al., 2019) or incentivizing specific segments of the labor pool to enter and remain in the classroom (Baker, 2014; Olitsky, Perfetti, & Coughlin, 2020).

Simultaneously, studies on education in rural and remote regions provide a base of knowledge regarding the preparation of rural teachers (Kline, White, & Lock, 2013; Mitchell et al., 2019), the unique challenges of teaching in rural schools (Goodpaster, Adedokun, & Weaver, 2018; Kahu, 2012), and the importance of the teacher within a rural school and community (Adams & Farnsworth, 2020; Eppley, 2015). The linkage between rural schools and teacher shortage issues has also been an area of study and focus (Oyen & Schweinle, 2020; Qian et al., 2020; Sindelar et al., 2018).

One of the more prolific areas of ongoing research focuses on governmental policy related to rural education and the role of teachers in rural schools (Brenner, 2016; Johnson & Howley, 2015; Sher, 2019). A common critique by rural school advocates continues to center on the marginalization of rural schools or the lack of governmental action on addressing the needs of regional learning centers (Schafft, 2016). The call for specific governmental interventions to mitigate various challenges impacting rural schools has been continual and frequent (Arsen et al., 2021; Sher, 2019; Stephens & Perry, 1991). Further, the focus on reshaping financial policy related to the funding of rural schools shows a common refrain regarding the specific differences found between rural and remote schools, and their urban and suburban cousins (Debertin et al., 1986; Ramirez, 2013; Sielke, 2004).

Regarding rural teacher recruitment, several studies and reports have focused on the role of housing, and the lack of housing inventories, regarding rural schools and rural teachers (Mitchell et al., 2019; Shaw, 2005; Superville, 2018). The prominence of this issue continues in many locations and has impacted normal rural school operations as many school districts now also have become managers for property designated for teaching housing (Kelley, 2017; Kennedy, 2018; Pratt, 2018). This issue continues to impact the recruitment and retention of teachers to rural schools and continues to be a primary barrier for many new teachers exploring a teaching role in a rural region (Branch, 2018).

This housing issue also connects to ongoing challenges related to teacher compensation and pay, as in some locations, such as the United States, the pay rates for rural teachers is far less than for teachers in urban and suburban districts (Nguyen, 2020; Tran & Smith, 2019). The importance of compensation and how it applies to rural teachers continues to be explored (Moeller, Moeller, & Schmidt, 2018), but has largely become a non-issue in nations and regions where a national salary schedule has been developed and implemented (Taimalu, 2021). When the cost of university attendance and completion, a common requirement for teachers in many nations, is factored against the future earnings of teachers, research shows that in the United States, for example, it is impossible for teachers to recoup a significant return on investment for the university degree (Lobo & Burke-Smalley, 2018). While this is not as common in regions featuring national compensation practices, the earning power of teachers around the world continues to lag comparable professions in the governmental or private sectors (Allegretto & Mishel, 2016; Taylor, 2008).

Methodology and Framework

Policy analysis as a methodology has been well established as an essential tool for studies involving governmental policy interventions and environments related to the public good or public sector (Kraft and Furlong, 2020). Policy analysis related to education, and all its components such as school building construction, the use of educational technology, and a litany of other interventions, has been an area of concentrated research throughout the last century (Mayer & van Daalen, 2013). Within the greater frame of policy analysis exists six

major clusters of activity that include: research and analysis, design and recommendations, clarification of values and arguments, strategic advising, democratization, and mediation (Mayer, Bots, & van Daalen, 2004). This study centers on the first three components of this cluster, as several of the policy interventions outlined within the study just beginning implementation.

This analysis largely connects to the theoretical framework of "justice as fairness" as developed through the work of John Rawls in the 20th century (Rawls, 1971). Schools and educational systems are generally seen as both political and social institutions, that could and should be guided, at least in part, by fairness (Rawls, 1985). As we are seeking to investigate governmental approaches to resolve variances in teacher supply and teacher quality found between urban/suburban schools and their rural counterparts, it is logical to apply this Rawls' approach to the political and social institutions that impact daily school operations – namely governmental oversight of schools and the teachers that work within them. If fairness is an objective supported by governmental institutions (Gooden, 2015), the equity challenges found in rural schools indicates a challenge to the of the application to this construct of fairness.

To understand the implementation of policy interventions used within three distinct locations, a specialized document analysis was conducted in the three distinct countries and regions. Within the scope of this research, document analysis is appropriate as it focuses on "the content of documents—such as the words, images, ideas or patterns contained therein" (Hard, Lee, & Dockett, 2018). As all research sites, Australia, the United States, and Zambia, utilize English as a primary language, the challenge related to misinterpretation due to translation was largely avoided. Further, the participating authors all reside in the various countries of focus, minimizing issues of cultural or historical misunderstanding.

Following a review of the various policy interventions used throughout all three countries, an analysis of similarities and variances within the collective documents was completed. These results are included within the discussion section of the study and link directly to recommendations regarding the support of rural educator recruitment and retention. This singular focus on rural education further refines the process of policy intervention analysis, as it is a common effort found in all three countries of focus.

Objectives and Research Questions

The objectives of this study are to understand the various challenges and interventions currently being used to recruit teachers to rural areas in three different nations. It is hoped that through this examination of what has worked, as well as what has not, in specific locations that an initial discovery of the global best practices associated with rural teacher recruitment and retention can be developed and replicated in other nations that struggle with finding and keeping teachers in more remote locations. While there are significant differences between the educational systems across all nations, some of the common challenges related to providing outstanding educational opportunities to students in rural areas exist everywhere.

To help provide structure to this study, the following lines of inquiry have been developed:

1. To what extent are the identified nations impacted by a shortage of teachers in more rural and remote areas? How does national or regional education workforce policy reflect the various challenges associated with rural teacher recruitment and retention?

2. What specific interventions have been developed to support rural teacher recruitment and retention in Australia, the United States, and Zambia?

The development the previously stated research questions are beneficial to help guide research and highlight the primary areas of inquiry. As three distinct and different nations are the area of focus for this study, it is also assumed that significant variance in terms of the level of impact and the extent of the interventions will vary. And while this may present challenges related to the development of unified outcomes and conclusions, it also provides an opportunity to explore and understand the unique nature of rural teacher recruitment and retention in three very different regions of the world.

Countries of Focus

The three countries of focus were developed through a review of research related to rural teachers in specific locations. In Australia, the problem of rural teacher shortages has been significantly defined and highlighted, with extensive research completed that emphasizes the challenge of placing and retaining teachers in the most remote parts of the nation (Kline, White, & Lock, 2013; Plunkett & Dyson, 2011; Trinidad, Sharplin, Ledger, & Broadley, 2014). Both Zambia and the United States recognize the issues related to rural teacher recruitment and retention as well, but the extent of implementation of various policy interventions varies widely – particularly when compared to Australia. This comparative analysis is possible due to the availability of information and resources within each nation, and the physical location of the researchers who reside within each nation of focus. Additional detail about the policy implementation and approaches with each nation follows.

Australia

The majority of Australia's population lives and attend schools in major urban centers (and the proximal suburban spaces) that are situated on the coastlines. Major metropolitan areas such as Sydney, Melbourne and, to a lesser extent, Perth comprise more than 80% of the total Australian population. Accordingly, the vast majority of Australia's primary and secondary (ages 5-17) student populations, as well as the majority of universities that prepare educators, are also located within these metropolitan areas. In total, there are more than 320,000 classroom teachers in Australian schools (Australian Bureau of Statistics, 2018a) – with the majority living within 100 kilometers/62 miles of the coastline.

As a nation, however, Australia has large expanses of rural regions that encompasses the majority of the interior of the continent. Within these remote and rural regions, more than 74,000 students attend schools (Australian Bureau of Statistics, 2018b). Finding classroom teachers for these remote schools has been a difficult undertaking (Kline, White, & Lock, 2013). Emerging and newly prepared educators have historically been hesitant to apply to the most remote and rural schools due to individual perceptions regarding social opportunities and professional limitations (Cuervo & Acquaro, 2018).

In response, various Australian states and territories have developed incentives, primarily monetary, to bolster the educator pipelines into more rural and remote regions. These incentives focus on financial benefits, but several regions have also included other incentives related to enhanced professional development opportunities and additional off-time for teachers during the academic year. Table 1 lists a sample of these incentives to entice teachers to rural schools.

Table 1
Australian Rural Teaching Incentives

State/Territory	Salary Incentives	Development Incentives	Other Incentives
New South Wales	Up to $25,000 (AUD) salary adjustment; up to $10,000 recruitment bonus	4 additional professional development days	Up to five additional personal leave days; potential subsidies for rental accommodation
Western Australia	Up to $24,901 salary adjustment	Professional development offered through web-based platforms.	Additional leave for teachers in remote regions; free or subsidized accommodation; relocation costs provided; subsidized vehicle lease/purchase
Northern Territory	Up to $23,952 salary adjustment	Specialized training (e.g., 4WD driver training)	Free or subsidized accommodation; up to four free flights to neighboring urban centers.

Many of the challenges related to rural teaching in Australia center on the remote nature of the smaller towns and villages throughout the country (Cornish, 2015). While some nations, such as the United States, may define remoteness as being more than two hours away from a major metropolitan area, there are regions in Australia that require driving time of more than 15 hours to reach the location of the rural school. This vast distance can be daunting to new teachers embarking on their initial teaching roles and requires them to make significant modifications to a cosmopolitan lifestyle that they may have developed during their time at university (Lavery, Cain, & Hampton, 2018). To compensate for this dramatic change in location and environment, some institutions have started shorter-term immersive experiences for pre-service teachers to experience teaching and living in these remote regions. These experiences have been beneficial as an increase in the number of students interested in teaching in remote locations has developed, but this process is dependent on a significant contribution of time and money on the part of the university and the university faculty to provide this opportunity (Mitchell et al., 2019).

The impact of these developed incentives, at this time, is largely unknown due to the nature of exploring the long-term development and retention of rural educators. It is evident, however, that student enrollment in Australian schools is projected to significantly increase, up to 50% by 2035, in nearly all states and territories – placing further demand on a limited teacher/educator labor pool (Australian Bureau of Statistics, 2013). This increase in student populations has a direct impact on rural teacher supply as it provides additional opportunities for existing rural teachers to relocate to more suburban or urban locations – leaving their rural school a vacancy that is difficult to replace. Without a unified approach to ensuring that all students have qualified and effective teachers in the classroom, there is a concern that educational equity for all Australia's students can be ensured.

Zambia

Zambian education is highlighted by the unique population distribution throughout the southern African nation that shows a relatively balanced number of students in each region of the country. The 4.2 million students attending school in Zambia are dispersed throughout the country with the Copperbelt, Lusaka, Central and Southern provinces posting student enrollments of more than 500,000 students (Ministry of Education, 2018). To support these students, Zambia employs more than 107,000 teachers throughout the country. These teachers facilitate student learning at the early childhood (ages 3-6), primary (7-13) and secondary 14-18) levels. According to the country's 2018 Educational Statistical Bulletin (Ministry of Education, 2018), the highest distribution of teachers in the country is within the Copperbelt province – the mining hub of the nation and inclusive of the cities of Ndola and Chingola. In this region, 19,761 teachers are employed, representing 18% of all teachers in the country. Other regions with significant numbers of employed teachers include Lusaka, the nation's administrative center, and the significantly populated Southern province. In contrast, the Western province of Zambia, in the most remote region of the country, has the fewest number of teachers currently employed.

Of particular concern in Zambia is the projected dramatic growth of school-attending populations within the next 15 years. At present, there are roughly 4.2 million enrolled students at the early childhood, primary, and secondary levels. This number is projected to increase dramatically by 2035 with a projected population growth of all Zambians from ages 0-19 of approximately 40% (Zambian Central Statistical Office, 2013). Based on this projection, it can be estimated that more than 5.8 million students will be enrolled by 2035 – an increase of 1.6 million students from today.

In Zambia, this student enrollment will, and has, increased more rapidly in urban areas than in rural areas. Yet increasingly the majority of African children who do not attend school are rural students (World Bank, 2005). A combination of demand-side and supply-side factors contribute to lower educational participation in rural areas, including aspects related to parental encouragement to attend school, and alternative demands on their time, such as helping with family farming and other agricultural tasks. Even when they attend school, rural children often find the curriculum less relevant to their lives and find less support for their learning from the home environment (World Bank, 2005). This makes children in rural areas more difficult to engage in education and often results in a lower quality education. It is hardly surprising then, that rural areas in Zambia show lower participation in education, and lower attainment.

Contrary to labor shortage patterns seen in other nations and regions of the world, it would seem that Zambia may be uniquely prepared for an increase in total student numbers. At present, the number of trained teachers far surpasses the number of available vacant teaching positions (Phiri, 2019). This has resulted in Zambia developing agreements with regional external African governments, such as Seychelles and Madagascar, to have Zambian teachers sent to another country to address teacher shortages in those countries (Lusaka Times, 2019a; Zambia Daily Mail, 2019). Yet, despite the current surplus of teachers, there are also indications that Zambia continues to face teacher shortages in some circumstances and locations. This problem centers on the nation's lack of capacity to employ teachers by the government (e.g., having teachers vetted, processed, and hired), and even where this process is completed, there remains issues with deployment patterns and teacher retention – particularly in rural areas.

As seen in the United States and in other global locations, successful governments continue to find it more difficult to supply quality education services in rural areas (Biddle & Azano, 2016). Within the African context, three primary factors combine to weaken the quality of teaching in rural areas. First, in many African countries, teachers have a preference to teach and live in urban areas with proximity to services and commercial/shopping enterprises. Accordingly, rural schools are often left with empty posts, or have longer delays in filling these vacancies (du Plessis & Mestry, 2019). And even if posts are filled, the number of qualified teachers seeking employment in rural schools remains low. In most cases, better qualified teachers have a greater choice of jobs and based on patterns of preference, many choose to work and live in urban areas. This can result in rural schools having less experienced teachers, as the more experienced teachers find ways to move to the more desired schools (World Bank, 2005).

To support these rural regions in Zambia, governmental incentives have been developed and implemented, resulting in increased compensation for teachers in remote and rural areas. While there is some evidence that these efforts have proven to be beneficial in supporting academic achievement for rural students (Chelwa, Pellicer, & Maboshe, 2019), it is unclear as to how these efforts align with the current issue of over-supply of teachers within Zambia. This pattern of simultaneous surplus and shortage of qualified teachers within parts of Zambia, especially between rural and urban schools, provides evidence that the problem of teacher labor in Zambia is not just a problem of numbers, but also an issue of ensuring that teachers are deployed to the schools where they are most needed. To resolve this unusual issue, it would seem to be important that government to address the various demand-side factors that cause teachers not to stay in rural areas despite the rural and remote hardship allowances currently in place. Teachers in rural areas do not just need monetary incentives, because the disadvantages of teaching in rural areas (such as limited access to services, technology, and other modern conveniences) far outweigh these salary-based incentives. It is, therefore, not surprising that most teachers prefer to work in urban areas, because the incentives for teachers in remote rural areas are not sufficient to compensate for the various hardships (Pugatch & Schroeder, 2014; World Bank, 2006).

Further compounding this issue is a higher-than-projected teacher annual attrition rate across Zambia. While a standard attrition figure of 5,000 teachers is projected by the Ministry of Education, recent years have seen more than 7,000 teachers elect to leave their classroom positions (Ministry of Education, 2018). A reduction in the number of teachers when the pupil enrollment is increasing will have an adverse impact on education quality within the country. Various factors currently contribute to the high rate of teacher attrition in Zambia – particularly in the rural areas (Das, Dercon, Habyarimana, & Krishnan, 2007). For instance, once the teacher has been deployed and assigned a teaching location, they are able to request transfers to other areas. Many times, these transfers are often requested based on marriage, as it is logical that a teacher would want to live in the same area as his/her/their spouse. Hence, it is rare to find female teachers in rural areas, unless they are with their husbands (e.g., both are teachers). Male teachers are also able to transfer on the basis of their need to complete further academic study, necessitating access to electricity which may not be available in some remote locations (Haanyika, 2008). Lastly, teacher illness is another major justification for movement, particularly from rural areas to more urban schools.

Student-teacher ratios may also be a contributing factor to this level of attrition as the nation averages 61.9 students for every early childhood and primary teacher and 37 students for every secondary teacher (Ministry of Education, 2018). With additional students, educator

workloads tend to rise and job satisfaction declines – elements that frequently have a direct impact on teacher retention (He, Cooper, & Tangredi, 2015).

In addition, Zambia also possesses a unique characteristic related to teacher qualifications. In Zambia, roughly 25% of all teachers possess university degrees, far surpassing regional comparative nations such as the Democratic Republic of Congo (3.6%) and Senegal (4.8%) (Bashir, Lockheed, Ninan, & Tan, 2018). The connection between teacher qualifications and student achievement has been extensively researched (see Bietenbeck, Piopiunik, & Wiederhold, 2018; Coenen, Cornelisz, Groot, Maassen van den Brink, & Van Klaveren, 2018), and is a significant factor impacting the potential future opportunities and benefits for Zambia's students.

Recent political actions, however, will likely have a long-term impact in regards to teacher labor force development within Zambia. The operationalization of the Higher Education Authority (HEA) in 2015, as established under the Higher Education Act No. 4 of 2013, and the establishment of the Teaching Council of Zambia (TCZ), and the National Action for Quality Education in Zambia (NAQEZ) have largely been well-received, as these organizations seek to provide mechanisms related to quality assurance and quality promotion in higher education. This is done primarily through enhancing governmental policy related to educator preparation and teacher labor supply in Zambia (Mwalimu, 2014). This pattern of simultaneous surplus and shortage of qualified teachers is not unique to Zambia, as it is also seen in other nations in Africa (Irving, 2012). The challenges related to teacher deployment, the lack of funds by governments to employ teachers, as well as the supply factors that make rural areas unattractive to teachers are commonplace throughout the continent. However, compared to current teacher labor supply limitations found throughout most of the world, the case of Zambia makes it a nation worthy of future study regarding teacher labor supply and policy.

United States

Concerns over educator shortages throughout the United States have been well-documented and have led to increased speculation about the viability of classroom-based careers and the retention of existing educators throughout the nation. At present, there are more than 3.5 million teachers employed throughout the United States (U.S. Department of Education, 2019a), with the majority of educators working in urban or suburban schools and school districts. One unique aspect of the American educational system is the lack of a nationalized curriculum or nationalized salary scale for teachers. Accordingly, there are more than 13,000 independent school districts that control the majority of educational operations – including the approval of curriculum and the establishment of compensation policies for individual educators (U.S. Department of Education, 2019b).

A projected shortfall of approximately 200,000 classroom teachers is anticipated in the United States by 2025 (Garcia & Weiss, 2019). Specialized teaching domains such as secondary math and secondary science continue to have limited applicants to local schools in all school location types - urban, suburban, and rural (Sutcher, Darling-Hammond, & Carver-Thomas, 2016). Yet, there are little commonalities regarding teacher shortages based on geography. Where some states, such as Massachusetts and Ohio, continue to have applicant numbers that far exceed available teaching positions, other states such as Colorado and Alabama, frequently have vacancies in rural schools that attract zero applicants (Whaley, 2016).

To combat these challenges, both federal and state governments have developed various initiatives in an effort to promote teaching careers to potential future educators and to provide financial incentives for new educators entering the profession. With lower salary rates available for classroom educators in the United States as compared to other occupations requiring similar education levels, the number of individuals pursuing careers in education has been in decline through most of the start of the 21st century (Sutcher et al., 2016). To remedy this shortage, several states have instituted financial incentives for teachers or teacher candidates – particularly for those interested in rural schools (Loewus, 2018). From a federal level, programs have been developed to help offset the high costs of university attendance as all states throughout the United States require that teachers possess a four-year degree (Hegji, Heisler, & Smole, 2018). In order to pay for the costly university education, many teachers are required to take out extensive loans, with the average loan debt for university graduates in the United States exceeding $30,000 (Carrig, 2019).

In the United States, several individual states have also taken steps to remarket the profession or make teaching more appealing to younger university graduates. Many states have examined avenues to reduce the barriers associated with teaching – particularly for those entering the classroom as a second career or those without formal training in pedagogy or teaching methods (Lilly, 1992). Other unique efforts to increase the number of individuals into the classroom also include the established "Troops to Teachers" program that supports former military members in developing a professional pathway to becoming a classroom teacher. This specific program has been seen as significantly successful as student achievement has been accelerated in classrooms with these former members of the military (Owings et al., 2016).

Despite these initiatives, many rural schools throughout the country continue to be impacted by a scarce pool of teacher labor, and many positions remain unfilled (Hernandez & Cohen, 2019). Without significant governmental intervention that leads to resolution of many of the issues related to teaching in the United States, including low salaries, overwhelming workloads, and school safety, it is difficult to foresee a significant increase of individuals seeking careers within government/public schools. Until these issues are resolved, American schools will continue to struggle with teacher recruitment and retention – particularly in the more rural and remote regions of the country.

Findings and Commonalities

In all three nations of focus, there exists some overlapping commonalities related to interventions designed to bolster the teacher workforce in rural locations. One shared approach clearly centers on financial incentives for individuals interested in rural teaching – a factor that has seen some success in Australia with a more limited success rate in the United States and Zambia. It is clear that compensation and salary does play a role in both the recruitment and retention of teachers in rural regions (Livengood, 2021; See et al., 2020). As we find in all three countries of focus, these financial incentives are a significant component of efforts to recruit and retain rural teachers. The Australian approach of offering both higher wages and recruitment bonuses for teachers willing to work in remote areas has largely been effective (Sattin-Bajaj, Walker-Gibbs, & Thomas, 2019).

A second key commonality within all three countries is the recognition by key stakeholders within national and local/state/provincial governments that the issue of rural teacher recruitment and retention is worthy of focus. This focus is exemplified by the development of

specific communications and associated interventions to address educator shortages in rural schools. In Zambia, for example, the Ministry of Education formally recognized the lack of teachers in the rural parts of the nation and, as a result, implemented a "hardship allowance" for teachers working in more remote regions (Chelwa, Pellicer, & Maboshe, 2019). This recognition of the issue and the development of an intervention specifically designed to address the rural teacher shortage issue demonstrates that the federal government does identify rural teacher placement as a problem. The US response to rural teacher shortages has less to do with the implementation of specific interventions, but rather focuses more on the development of data and reports that highlight the concern. (USGAO, 2022). While the lack of a developed intervention in the US system is notable, there are official communications within the US federal government that highlight rural teacher challenges. This approach of recognizing the ongoing problems of teacher staffing in rural schools is common in all three locations, but the mitigation of these concerns differs in Australia, the United States, and Zambia.

When examining the commonalities in all three locations, it also becomes clear that – in each country – there is little evidence that efforts to integrate rural teaching into existing educator preparation programs at colleges and universities is taking place. In most educator preparation programs at the university level, future teachers are prepared, generally, to teach in either urban or suburban schools (Coffey et al., 2019; Siwatu, 2011). There seems to be very little information or indication that colleges and universities, generally, are focusing on preparing educators for roles in rural schools. While preparing teachers for life as a rural teacher may take place in a limited fashion at individual institutions of higher education, there is not a universal national requirement in any of the three countries of focus to emphasize the preparation of rural teachers. In many instances, particularly in the United States, educators are more likely to be prepared to work in suburban school districts that include the majority of students in the nation (Riser-Kositsky, 2020). This lack of focus on the preparation of rural educators likely has impact on the limited number of new teachers electing to work and live in more remote locations. If emerging teachers do not visit, student-teach, or engage with rural schools during their preparation, it is logical to assume that they will be less likely to consider a teaching role in the rural environment (Brundin, 2019). Without a mandate or incentive for educator preparation programs to focus on rural schools, it is unlikely that these programs will emerge organically.

Discussion

With a developing shortfall of 69 million teachers worldwide within the next 15 years, concentrated and specific efforts need to be developed and undertaken to ensure that all students, regardless of physical location or postal code, have access to relevant and beneficial educational opportunities. The incentives developed by many nations that seek to promote teaching careers and expand the pool of potential teachers are important first-steps, but these initial efforts cannot be the only initiatives developed in support of bolstering teacher pipelines into the classroom. Specific efforts should be developed to help resolve ongoing problems with retaining existing educators (in all locations – including rural schools), addressing factors that lead to teacher frustration and burn-out, and developing a new generation of school leaders that will be needed to replace retiring or departing principals, headmasters, and superintendents (Wallace Foundation, 2022). Without the development of comprehensive and extensive initiatives that directly impact and benefit classroom teachers, teacher shortages will continue, and likely expand, well into the mid-21st century. As teacher numbers dwindle, the impact on student learning will be substantial – a very concerning

development as global events and ecological concerns will require a highly educated generation of young people that will emerge in the mid-21st century (Kotok & Knight, 2022).

Rural schools are frequently the first educational institutions to be impacted by educator shortages and serve as an indicator for larger issues related to the appeal and desirability of teaching as a profession. Local rural students frequently find themselves attending schools that may have a low-quality or nonexistent teacher, simply as a result of the imbalance related to the current teacher labor supply (Zhang et al., 2018). Today, many rural schools are operating without qualitied teachers and instructors in key academic disciplines such as math and science (Dobo, 2022). Students in rural schools are required to either self-teach themselves these subjects or forgo classwork and learning in specific content areas. While it is admirable that these students continue to push forward despite significant odds, this situation highlights larger issues related to rural education and equity.

In suburban and urban schools, particularly in the affluent sections of a city, it is assumed and expected that students will have access to a highly trained teacher with knowledge about specific academic subjects or pedagogical approaches. In rural schools, however, having this skilled individual leading a classroom is not always a safe assumption. Vacant teaching positions and ineffective teachers are common in more remote parts of the world (Amminson, 2022). This has led to the emergence of a concerns regarding school equity and educational access. Students who are fortunate to be able to attend schools in suburban or urban areas with qualified teachers in all classrooms, contrast dramatically with their peers in poorly staffed rural locations (Coenen et al., 2018).

Today, many schools look to technology to help “level the playing field” and provide instruction through internet-based video applications and platforms (Economist, 2017). Yet, this implementation of virtual teachers or on-line education highlights the inequity found between those students in rural schools and urban/suburban schools that continue to employ in-person faculty. Where rural students are frequently provided a virtual teacher to provide instruction from a distance, non-rural schools infrequently use video instruction as their primary mode of teaching (Barry & Easterly, 2021; Li, Sun, & Gee, 2019).

This lack of qualified educators staffing rural schools leads to additional questions regarding educational equity and the role of geography on the quality of education available to a student. Ideally, the student in a rural school in a remote location will have the same opportunities and resources as their peers in urban and suburban locations, yet there is emerging evidence that this is not the reality in most rural schools (Gagnon & Mattingly, 2015). The current shortages of qualified teachers in rural schools should be seen as a precursor to future staffing challenges in urban and suburban schools. While a school in a remote location today may not be able to secure the services of a secondary chemistry teacher, this vacancy could well exist tomorrow in schools in large urban areas or in suburban schools. Without proactive and intentional action to secure the services of qualified and enthusiastic rural teachers, school effectiveness will be limited and academic development for students in more remote location will be impeded.

Conclusion

In Australia, the United States, and Zambia, numerous initiatives and communications have been developed to support the placement of classroom teachers in rural and remote locations. While each country approaches the concern differently, there is a common thread between all

three about the recognition of the challenges related to recruiting and retaining rural educators. Now that the problem has been identified and analyzed, each nation has embarked on trying to address the issue with incentives, additional studies, or reallocation of teachers to support rural schools. This challenge will remain as the teacher labor supply continues to shrink, but it is hoped that the initial steps taken by each country will yield positive results that lead to effective learning opportunities for the children in the rural regions of the world.

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