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A Comparative Examination of Vocational Education Teacher Qualifications and Preparation Between Finland and the State of Ohio in the United States

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Working between the formal education system and workplace, vocational education teachers contribute to the growth and development of a country's future workforce. Using interviews of university professors, examination of legislation and administrative rules and information obtained from applicable websites, this article compares two different teacher education systems for the preparation of vocational teachers in the country of Finland and the state of Ohio in the United States. Findings indicate both systems have commonalities as well as significant differences. This comparison will contribute to a better understanding of vocational teacher education from an international perspective and examines such aspects as qualification requirements for vocational education teachers, the institutions providing teacher preparation and the content of the teacher training programs. A discussion of the vocational education systems in both settings is also provided for background and context.

Keywords: teacher training, Finland, United States, vocational education

Introduction

Vocational education teacher training has commonalities in many countries, yet the requirements for, and preparation of, these individuals is diverse and can vary significantly (Organization for Economic Cooperation and Development, 2021). With its



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ties to the global labor market, vocational education consistently requires qualified and well-prepared teachers so that those who complete courses and programs are ready to enter the world of work, or to pursue further education and training. Teachers of the numerous disciplines of vocational education must possess the attributes associated with effective educators, but more specifically, high levels of technical skills, which must be updated and refined in response to changes in technology and within society, as evidenced by the challenges presented by the current worldwide pandemic.

Drawing specific international comparisons in vocational education teacher training can be a challenge for researchers, as vocational education, while common in most countries, has a very country-centric focus, perhaps more so than any other educational discipline (Shaw et al., 2016). This can make generalizable comparisons in vocational education teacher education difficult, in addition to the challenges associated with comparative studies on a global scale (Keller et al., 2019). However, the focus of this analysis will be on one such comparison.

Importance of Comparative Analyses. Comparative education has a long history and many definitions and explanations. Some of the more noteworthy include the following, stating comparative education is:

- “A comparison of variant philosophies of education based not only on theories but the actual practices that prevail” (Kandel, 1930, p. 4)
- “Tracing the movement of a current educational idea from one culture to another.... movement of ideas or practices from one country to another” (Good, 1963, p. 184)
- Attention directed at educational ideas, process and practices in other societies (Trethewey, 1976)
- Seeking to understand the differences and similarities among educational systems (Getao, 1996).

The case for international comparative studies was clearly detailed by Rojewski (2004) who cited the need for exploring and describing a given nation's progress toward vocational and technical education goals within the context of other developed countries. These examinations can also be used to describe best practices and guide policy-based practice. Pilz (2012) edited a significant collection of comparative chapters on the future of vocational education and training in which he posited the need for research into comparative vocational education and training in today's world. He further cited the need and significance of comparative studies in vocational education and training by stating “Research into international comparative vocational education and training not only provides a much better and deeper understanding of other education systems but can also make an often substantial contribution to mutual learning” (p.2).

Unfortunately, there have been only a select number of studies comparing the issue of vocational teacher preparation among countries. These comparisons explored various characteristics and where appropriate, suggested the possibility of policy transfer between countries with respect to vocational education and training and teacher

education. Barabasch and Watt-Malcolm (2013) examined the German system for vocational teacher education and used it as a basis for suggesting changes in the way Canada prepared its teachers, while Grollman (2008) examined differences in the way in which vocational teacher's tasks change, depending on the country and institutional framework in which they carry out their work. Dehmel (2011) compared the vocational education systems in Germany and England with special attention on teacher training. More recently, Isaacson et al. (2021) examined the duration and content of vocational education teacher education programs in Finland, Germany, Norway, and Spain. The differences between the individual country's systems of vocational education made comparisons challenging, although it was noted that the demand for vocational teachers was a constant.

A recent study by Keller, Zirkle and Barabasch (2019) compared vocational teacher training between the U.S. and Switzerland. These three authors acknowledged the challenge created by the multiple ways in which vocational teachers are trained in the U.S., particularly those entering teaching from business and industry. In the United States each state sets its own requirements for vocational teacher education and examining teacher education requirements in the U.S. has been described as looking at 50 different countries (Zirkle, 2019).

Purpose, Rationale and Limitations. The purpose of this study was to examine the similarities and differences between vocational education teacher qualifications and preparation between the country of Finland and the state of Ohio in the United States. A secondary purpose was to determine additional avenues of collaboration for future research.

The rationale for this study was to build on previous comparative works that have examined how vocational teachers are prepared across geographic lines. Previous comparisons have been used to begin discussions on policy differences (Barabasch & Watt-Malcolm, 2013), as a method to reflect on possible geographical differences and levels (Kosmutzky & Wohler (2015) and as a strategy for developing international collaborations (Kosmutzky, 2018). This study utilized researchers from Finland and the state of Ohio in the United States in addressing the purpose and rationale for this study. The study was further strengthened and supported through the U.S. Fulbright Scholar program, as a U.S.-based researcher served on-site in Finland to foster collaboration and ensure the accuracy of the methods and findings of the study.

The study authors acknowledge the limitations associated with examining a country and one particular state in the United States. However, such an analysis can still yield useful international comparisons and support outcomes similar to the previously cited studies, including policy changes, professional development activities, retention strategies and the furthering of international partnerships. The study will also add to the existing literature on vocational teacher education.

Background and Framework

Schleicher (1996) identified several issues with comparing educational systems from an international perspective. These included the populations being compared, the

classification criteria being analyzed, and the methods of comparison utilized for the analysis. Regarding the population being compared, Komuetzky and Wohlert (2015) discussed a comparison design of “most-similar-cases vs. most-different-cases” (p.6), and any international comparison prompts questions about the equivalence of the study populations and the data material. It is acknowledged that this study was likely to exhibit some “similar vs. different” aspects given the obvious differences in the “country/state” subjects being analyzed. Komuetzky and Wohlert (2015) also described a concern with “interpretative equivalence” (p.7), or the comparability of the results of a study such as this one. However, this research focused on the population of individuals involved in education and training for the purposes of entering the teaching profession in vocational education and sought to determine not only the differences but also the similarities on this one characteristic. Doing so also addresses Schleicher’s (1996) first issue regarding the populations being compared.

Komuetzky and Wohlert’s design fits the research discussed in this article, as the analysis involves a country (Finland) and a state (Ohio) within a country (United States). An initial task was to examine vocational education in both Finland and Ohio, defining nomenclature, overall structure within the educational systems and the objectives and outcomes of each.

Across the world the discipline of vocational education has many names: technical vocational education and training (TVET), vocational-technical education (VTE) vocational education and training (VET), and in the United States, career and technical education (CTE). In Finland, the discipline is known by the long-standing name of vocational education. For the purposes of this study, we have retained the term “vocational education” as the common descriptor.

Within each system of education, vocational education can be found at parallel levels within their respective educational systems. The United States, due to its 50 different states and systems, has some variability in how grade levels are constructed, specifically at the elementary and secondary levels. Technical subjects taught in the United States at less than the baccalaureate level have been defined as vocational education (Zirkle, 2016), thus, the offering of these courses stops at the two-year community and technical college level.

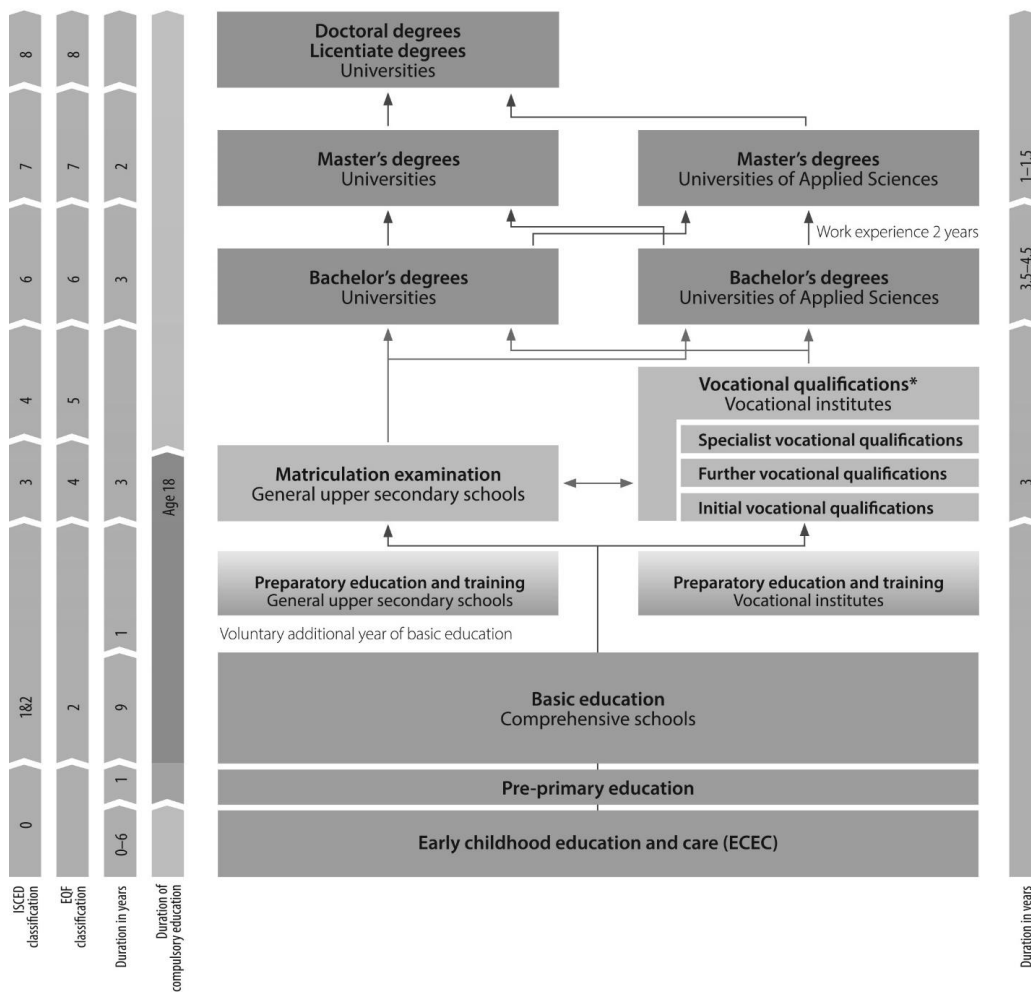
In the state of Ohio, vocational education programming can begin in middle grades (6-8), with exploratory courses in career pathway areas such as agricultural and environmental systems, arts and communication, health science and information technology (Ohio Department of Education, 2022). Course offerings are expanded upon at the high school level (generally grades 9-12) and many secondary education program curricula in these vocational/career pathways are aligned and articulated with Ohio’s system of community and technical colleges. It is important to note that teaching credentials (in Ohio, a teaching license) are required for secondary vocational teachers, but not for individuals teaching at the two-year college level. For the purposes of this comparative study, only secondary level vocational teachers and their preparation are of interest.

In Finland in 1966, the National Board of Vocational Education was established to administratively provide guidance for vocational studies within the country, and this

responsibility was assumed by the Ministry of Education in 1968 (Laukia, 2017). A major reform took place in Finland in the early 1980's, with nine years of compulsory (basic) education required of all students. As a result, after basic education, upper secondary education was divided into upper secondary *general* education, and vocational education, and students could continue their studies in either category for a period of three years. In addition, during this transition, vocational education was divided into eight sectors, including culture, humanities and education, natural resources and the environment, natural sciences, social science/business and administration, social services/health and sport, technology/communication and transportation, and tourism/catering and domestic services (Laukia, 2017). Figure 1 illustrates a general structure of the Finland educational system.

Figure 1

General Structure of the Finland Educational System



Note. Source – Finland Ministry of Education and Culture.

Interestingly, both vocational education systems have made significant efforts in improving both the quality and the public perception of vocational education. Creating a more positive public perception of vocational education in secondary level education has been one of the key focus areas for Finland (Meriläinen, 2011). This has resulted in improved pathways to further education and training for students who complete vocational education programs, including a legislative policy for students studying in vocational schools to have an educational pathway for qualification to study at a higher education institution (Meriläinen et al., 2019). Ohio has also developed improved ties to postsecondary education. Vocational education programs in the state now provide dual credit options and college preparatory courses which offer students the opportunity to earn both high school and college credit at the same time and transfer these credits to postsecondary institutions. Articulation agreements between the secondary and postsecondary institutions provide a seamless transition from high school to college (Zirkle, 2016).

The choice for comparison of a European country (Finland) and a single state in the United States (Ohio) addresses Schleicher's second comparative concern of classification criteria. In Finland, there is one pathway to become a vocational teacher. As Finland's population and industry grew rapidly in the 1960's and early 1970's, there was growing interest in vocational education (Laukia, 2017) and an immediate need for teachers. A time-shortened model for the preparation of vocational educators was needed, so the decision was made to forego a university degree-based teacher preparation program (similar to those found in academic disciplines). Instead, a process was developed to bring individuals from business and industry into the teaching profession and provide them a focused program of pedagogical training. This process proved to be both efficient and cost-effective and still exists today.

In Ohio, as in many other states within the United States, there are two pathways to a vocational teaching credential:

- A "traditional" pathway that involves a degree program (generally a bachelor's or master's degree), including general education coursework, courses in pedagogy, and courses in the subject matter to be taught, such as agriculture, business or family and consumer sciences
- An "alternative" pathway, which brings individuals into teaching from business and industry, and provides them with pedagogical instruction, either prior to, or during their first few years of teaching. This pathway produces the majority of new vocational teachers in Ohio each year. This pathway will be used for the comparison with Finland's model of vocational teacher preparation, as it is a closer approximation.

From an historical perspective, there are some interesting parallels between Finland and Ohio with respect to vocational education. In 1917, Finland gained independence from Russia, and in the same year, the Smith-Hughes Act was passed in the United States, which was the first federal legislation devoted to funding and oversight of

vocational education programs; Ohio established its first state board of vocational education as a result (Shoemaker & Parks, 2007). Both societies were largely agrarian in the early part of the 20th century, although Ohio's manufacturing sector began to expand during this time. After the second world war, expansion of vocational education occurred in Finland and many vocational schools were built (Laukia, 2013) and in Ohio the same held true, as the cities of Akron, Cincinnati, Cleveland and Dayton all built vocational high schools after the war (Shoemaker & Parks, 2007). In the 1960's and early 1970's, there was much activity related to vocational education in both settings. In response to a new law passed in Finland in 1958 that required all municipalities of over 20,000 residents to establish a vocational school, many new vocational schools were built in the early 1960's, and as Finland's population continued to grow, more new schools were built in the early 1970's. Likewise in Ohio, the federal passage of the Vocational Education Act in 1963 gave funds to all the states to maintain, improve, and develop vocational education programs. The Vocational Amendments of 1968 to this act provided further funds for construction of permanent vocational training facilities. This resulted in the building of many area vocational schools, which expanded the reach of programs in Ohio to every geographic area. The first of these area vocational schools was opened in Springfield, Ohio in 1967.

Vocational teacher education has seen marked changes in the past thirty years in both settings, and an argument could be made the changes within the two settings are in opposite directions. In Finland, the 1970's and 1980's were decades of great change for the Finnish education system (Laukia, 2013). One area of focus for the system was vocational education teacher preparation, as during this time there were many different approaches to preparing vocational teachers (Helakorpi, 1985). Some vocational teachers were prepared in vocational colleges, others in vocational high schools, and still others were prepared in universities. In addition, different occupational sectors were prepared in different institutions, such as business teachers in vocational business colleges and health occupations teachers in universities which also prepared health professionals for public and private health organizations (Jari Laukia, personal communication, December 13, 2021). In the 1990's, Finland developed a system of five universities of applied sciences, and the Parliament of Finland created five schools of vocational teacher education (see Table 1) within those institutions, and it was decided these would be the sole providers of vocational teacher education in the country. With strong government support, these five schools of vocational teacher education continue today within their respective university of applied science.

In Ohio, as in many other states, the number of colleges and universities offering vocational teacher education has declined. Virtually all the private colleges and universities have ceased offering vocational teacher education programs, and many of the state supported universities have followed suit. This trend in the decline of the number of vocational teacher education programs was first noted by Lynch (1996) and has continued through the years in research by Bruening et al. (2001), Zirkle et al. (2007) and most recently by Fletcher and Gordon (2017). Causes for this decline are due in part to the specialized nature of vocational teacher education programs in the alternative pathway, which are shorter in duration than degree-based programs and are costly to

administer. As a result, third-party (non-university) providers have begun offering teacher education programs to states at a much lower cost than universities. As of 2021, only eight universities offered vocational education teacher preparation programs in Ohio, and only five offered a program to bring individuals in from business and industry to teach (Ohio Department of Higher Education, n.d.).

An additional area where differences exist is the employment outlook for vocational teachers in the two settings. In Ohio, there are presently 1,762 vocational teachers employed at the secondary level (Ohio Department of Education, 2022). With respect to Finland's vocational teachers, the latest data show 6,123 vocational teachers (Education Statistics Finland, 2022). However, this number includes teachers at vocational colleges, and is not categorized into secondary teacher total by Finnish government data, so a precise comparison is not possible.

While specific data is not available on the number of vocational teachers needed, Ohio in general is experiencing teacher shortages across all teaching fields and grade levels (Frost, 2022; Petrus, 2022; Poiner, 2021). Vocational teachers in Ohio and across the U.S. have been difficult to recruit and retain due to a variety of factors, including salary disparities between schools and the private sector, a lack of professional development, funding challenges leading to vocational programs being discontinued, and a lack of prestige associated with teaching (Zirkle, 2005; Zirkle, 2022). In Finland, teaching enjoys high social status (Saavedra et al., 2018; Schleicher, 2020) and teacher shortages are not commonplace. This is particularly true of vocational teachers in Finland in many vocational areas, such as agriculture business and healthcare. However, recently, as Finland's economy continues to grow, shortages of vocational teachers in the skilled trade areas of manufacturing, transportation, building trades and construction have begun to appear (Jari Laukia, personal communication, May 23, 2022).

Geographic differences exist. Finland's latest population data shows 5,549,807 residents (Statistics Finland, 2022) while Ohio's stood at 11,689,100, approximately twice Finland's census (U.S. Census Bureau, 2019). Ohio is much more densely populated, with many more people in a state of 116,096 square kilometers (Ohio History Central, n.d.), while Finland has an area of 304,590 square kilometers (World Bank, 2021).

Economic differences are also evident. Finland's economy is largely service-based, with banking and technology services the leading industries in the country and employing nearly three-fourths of the population (Nordea, 2021). The manufacturing sector is the next largest, with the country exporting a variety of goods, from wood products to labels, paper, cardboard and packaging. Agriculture only accounts for 2.3% of the country's gross domestic product, due in part to the climate (Nordea, 2021). Meanwhile, Ohio has a long history with both manufacturing and agriculture, as the manufacturing sector employs over 700,000 people and is a leader in the production of steel, autos, and trucks (Ohio Department of Development, 2021). Ohio contains 14 million acres of farmland and has more than 1,300 food producing manufacturers, making food and agribusiness the largest industry in Ohio (JobsOhio, 2019).

Method

Research Design. This study compared Finland’s sole model of vocational teacher preparation to Ohio’s alternative model as both involve recruiting individuals from the world of work into teaching, and both approaches result in a teaching credential, not a degree. With this approach, Schleicher’s (1996) classification criteria concern is addressed. In addition, as previously noted, the research conducted for this study was supported by the U.S. Fulbright Scholar program. Further support was provided by the Fulbright Finland Foundation and the Haaga-Helia University of Applied Sciences, one of the five universities of applied sciences which offer vocational teacher education. The ability to access information and individuals in-person within Finland and via electronic means (Zoom, Teams) in Ohio strengthened the required analysis. The methods of comparison used for both systems were similar, which addressed Schleicher’s (1996) third concern regarding comparisons between two internal educational entities.

Several strategies were utilized to gather data for the comparison. To ensure validity of the information related to teaching credential requirements as well as university program requirements, applicable legislation and administrative rules were accessed to determine the structure and processes of vocational education in both locations. To obtain this information, pertinent government and university websites were explored and interviews were held with individuals in various governmental offices and with university faculty in both locations. Responses across these various data sources were cross-checked to ensure the reliability of the findings. A listing of the resources used to locate and collect the information is provided in Table 1.

Table 1

Resources Accessed for Study Data

Type of Data	Resources
Economic	Nordea Bank, JobsOhio
Geographic	World Bank, Ohio History Central
Population	Statistics Finland, United States Census
Teacher Data (numbers of teachers)	Educational Statistics Finland, Finnish National Agency for Education, Ohio Department of Education
Teacher Qualifications	European Commission, Finland Ministry of Education and Culture, Ohio Department of Education, Ohio Department of Higher Education, Ohio Legislative Service Commission
University Program Entry Requirements and Curriculum Structure	University Program Directors and Faculty (Finland 3, Ohio 3)

With a set of data sources identified, a set of questions was constructed to guide the analysis:

1. What agency, accrediting group or educational institution determines qualifications for vocational teacher credentialing (credentialing defined as a certificate or license to teach)?
2. What are the curricular requirements for such a credential?
3. What agency, accrediting group or educational institution provides or issues the credential to the vocational teacher candidate?
4. Are there periodic reviews or updates conducted regarding these processes?

Results and Discussion

In Finland, the Ministry of Education and Culture develops vocational education legislation and supervises the sector (Finland Ministry of Education and Culture, n.d.). The Ministry also determines the curricular requirements for vocational teacher education programs and approves university vocational education teacher education programs to provide pedagogical training. While at present there is no periodic review of these programs by the Ministry, each university conducts internal reviews based on stakeholder input and makes changes to the curriculum as needed. Upon completion of a vocational teacher education program, the university issues a graduation diploma (certificate), which is a nationwide qualification that verifies an individual's credential to teach; there is no teaching certificate or license issued by the Ministry.

In the state of Ohio, rules and regulations are approved through a legislative process derived from language found in Ohio's Revised Code (Ohio Legislative Service Commission, 2022). Two state agencies – the Ohio Department of Education (which oversees K-12 education) and the Ohio Department of Higher Education (which has oversight for the state's postsecondary colleges and universities), along with stakeholder input, establish the Ohio Administrative Code, which contains the specific standards related to vocational teacher education. Colleges and universities propose teacher preparation programs that meet the standards and requirements. These proposals are then peer-reviewed by education professionals and the department of higher education and if endorsed, are ultimately approved by the state chancellor. These proposals are generally reviewed every five years. Upon completion of a vocational teacher education program, the university verifies completion, and the state department issues a teaching license.

Work Experience. In both settings, the first requirement for a vocational education teacher is work experience related to the content/subject area in which the individual will be teaching. This finding is consistent with the works of Misra (2011) and Kaiser and Lindberg (2019) who found that in most European countries, work experience and vocational qualifications were the primary prerequisites for employment as a vocational teacher. With respect to this qualification, the requirements are very similar. The general requirement in both settings is three to five years of related work experience, although in each case, there can be some variation in the requirement, based on other factors, such as the subject to be taught.

In Finland, the work experience requirement can be reduced (but still required) if an individual has previously taught in some capacity in a school, or if there is a specific need for teachers in a given occupational area, with few candidates meeting the five-year requirement. Some consideration can be given to these factors when an individual applies to a teacher education program. If a teacher does not fulfill qualification requirements, he or she can teach temporarily for a maximum of two years if qualified teachers are not available (Jari Laukia, personal communication, November 30, 2021).

In Ohio, the number of years of work experience required to qualify for a teaching license can vary, based on education. The minimum requirement is a high school diploma and five years of work experience. Then, based on education level, the number of years of work experience can be reduced. See Table 2.

Table 2

Work Experience Requirements for Vocational Licensure in Ohio

Educational Background	Work Experience Requirement
Successful completion of a career-technical specific two-year program at the secondary level	4 years of related work experience
Baccalaureate or master's degree in the content area (i.e., subject matter, career field or career-technical category)	2 years of related work experience
Baccalaureate or master's degree in education that led to a teaching certificate or license but not in the vocational teaching area	5 years of related work experience
Baccalaureate degree outside the career field/career-technical subject area	5 years of related work experience
Associate degree in the content (i.e., subject matter, career field or career-technical category) or 60 semester credit hours in the content (i.e., subject matter, career field or career-technical category)	3 years of related work experience
High school diploma AND an adult education certificate or the equivalent in the content/subject matter/career field/career-technical category	4 years of related work experience
High school diploma	5 years of related work experience

One difference that occurs between the two pathways is the agency which verifies the work experience of the teacher candidate. In Finland, work experience is validated by the university during the application process for the teacher education program. In Ohio, the employing school district is required to verify work experience and the university is not involved in this process.

Education. Entrance into vocational teacher education in Finland requires a bachelor's degree at a minimum. The degree must also be related to the content/subject being taught (Isaacson et al., 2018). As mentioned, in Ohio, the minimum requirement is a high school diploma, and having additional education can reduce the number of years of work experience that are required. A recent longitudinal study at one Ohio university revealed that the majority (45%) of vocational teachers entering the profession had some college/university education but no degree, while almost 30% held a bachelor's degree (Zirkle et al., 2019). Many of the vocational teachers may not hold a bachelor's degree but have received intensive training through a registered apprenticeship program or through occupational training in the military.

Teacher Education Programs. In Finland, there are five universities of applied sciences which provide vocational teacher education. Teachers of academic or comprehensive subjects are prepared within colleges of education in the country's universities. As mentioned previously, in Ohio, there are also five universities which provide vocational teacher education to individuals entering from business and industry. These 10 institutions are approved by their respective governmental agencies to offer vocational teacher education, and this must meet accreditation or qualification standards to do so. In Finland, the approving agency is the Ministry of Education and Culture; while in Ohio, it is the Ohio Department of Higher Education. All of the institutions are shown in Table 3.

Table 3

Universities Offering Vocational Teacher Education in Finland and Ohio

Finland	State of Ohio
Haaga-Helia University of Applied Sciences	Bowling Green State University
Häme University of Applied Sciences	Kent State University
Jyväskylä University of Applied Sciences	The Ohio State University
Oulu University of Applied Sciences	University of Rio Grande
Tampere University of Applied Sciences	University of Toledo

Program Entry Requirements. Entry requirements into the respective university teacher education program are somewhat different. For Finland's vocational teacher education programs, there is a detailed application process, and admission is on a competitive basis, usually beginning in January of a given year. While there are a few individuals already serving in a teaching role (substitute, permanent part-time) who apply, the majority of students are seeking to enroll in the teacher training to pursue a teaching position as a potential career change. Applications are reviewed and scored based on a variety of factors including relevant education and work experience, as well as which subject area within vocational education the individual is qualified to teach. In

certain vocational subject areas where there is a significant need for teachers (such as in many of the technical trades/occupations), additional weight may be attached to applications in these areas.

In Ohio, program entry into the alternative vocational teacher education program is based on employment in a school district. Once a teacher is hired (generally in the summer), they are instructed to apply to one of the five universities offering a vocational teacher education program. If the teacher meets basic entrance requirements, admission is assured. The teaching license is issued “up-front” with school district approval and university enrollment, so these teachers are given the authority to begin teaching (and receive a teaching salary). Teachers entering a university program must meet admission requirements to the university and they are generally enrolled initially as licensure-only (non-degree seeking) students, although the opportunity exists to pursue a degree during taking courses for licensure or after completion. The teachers are taking courses while they are teaching, so this approach can best be described as in-service teacher education (Koellner & Greenblatt, 2018).

Curriculum, The Finland Ministry of Education and Culture defines four curricular areas which must be addressed by a vocational teacher education program: teaching pedagogy, vocational pedagogy, practice teaching and optional studies, such as entrepreneurial pedagogy, special education, digital pedagogy (educational technology) and leadership in teaching. These optional studies can be determined by the respective university. The curricular areas for a vocational teacher program as required by the Ohio Department of Education (2016) all address pedagogy from a vocational perspective. Since the Ohio teachers are already teaching, there is no practice teaching requirement as exists in Finland.

Based on the requirements, the specific curricular structure of the two settings is similar yet has some significant differences. A sampling of pedagogical content from both settings reveals much in common, including a focus on learning design and teaching methods, curriculum development and assessment. Additional content emphasis on the role of the vocational teacher, professionalism and working with learners of diverse needs is also present in both programs.

The most significant difference is the model used for the delivery and assessment of the teacher’s pedagogical content. The Finnish model is competency-based, which allows teacher candidates to advance based on their ability to master a skill or competency at their own pace. This approach is not graded in a traditional sense. As students demonstrate competence, those skills and knowledge sets are marked as achieved. Interestingly, competency-based education and training (sometimes known as outcomes-based education) can be followed back in time to craft guilds, early forms of apprenticeship and other methods used for developing vocational-technical skills and expertise. Versions of competency-based education in Finland have played a significant role in the country’s vocational education in the last 30 years, starting with significant reforms of the structure of vocational qualifications which were implemented in 1995, and reform of the curricula of VET beginning in 1998 (Numminen, 2000). This

eventually led to the construction of a competence-based qualification system which is in place today.

Even though competency-based teacher education in the U.S. can be traced to the 1970's (Ford, 2014), the method has not become of common element of teacher preparation in the U.S. The Ohio model examined for this study is course-based, and the teachers must complete a series of graded courses in a defined academic semester system. These courses contain competencies that must be achieved but these competencies are embedded within a graded course, which is a distinct difference from the Finnish competency-based model.

Comparing the two curricula from a time standpoint yields some differences. A prospective teacher in Finland's vocational teacher education program is essentially enrolled full-time for one year, earning 60 credits through the European Credit Transfer and Accumulation System (ECTS). One credit translates into 25 to 30 clock-hours of a student's workload in learning activities such as lectures, seminars, projects, practical work, work placements and individual study (European Commission, 2015). This calculates to a workload range between 1,500 to 1,800 clock-hours. Completion of the program can take from 1 to 2 years. The 24-semester hour vocational teacher education program in Ohio is a part-time program over a four-year period. According to the U.S. Department of Education (2008), one semester credit hour represents 1 hour per week of scheduled class/seminar time and 2 hours of student preparation time over a 15-week semester. So, one credit hour over the course of a semester equals 45 hours clock-hours in a student's workload. Twenty-four semester hours with this formula calculates to 1,080 clock-hours over the course of the vocational teacher education program. From a simple clock-hour perspective, the Finland curriculum is significantly more demanding.

Actual time and requirements for completing the programs can vary in each setting, depending upon the individual's previous work experiences, coursework or other education-related activities. In Finland, an individualized professional development plan is constructed upon program entry, and the number of hours spent in the program can be reduced. For example, some individuals may have previous teaching experience, and their time spent in practice teaching can be reduced as a result. In Ohio, if a teacher has previous coursework that aligns with the program coursework, those courses may be accepted, thus reducing the number of courses and credit hours required. Both programs exhibit some flexibility in terms of meeting completion requirements.

Conclusion and Recommendations

This comparative study reflected aspects of previous comparative studies, as it highlighted policy differences (Barabach & Watt-Malcolm, 2013) related to teacher education qualifications, examined educational qualifications within geographical differences (Kosmutzky & Wohlert (2015) between a European country and a state in the United States and demonstrated an international collaboration (Kosmutzky, 2018) between researchers in different countries.

This study yielded some intriguing findings. Both Finland and Ohio have well-developed requirements for entering the vocational teaching profession, and each places a

high value on “real-world” work experience as a qualifying metric. Finland has a more rigid requirement for a bachelor’s degree as the desired education level, whereas Ohio has perhaps a wider latitude for required types of education (apprenticeship, military).

With respect to the teacher preparation programs, there is a significant difference, as Finland’s model is competency-based, while Ohio’s is course-based. Finland’s approach is more intensive, allowing for completion in no more than two years, while Ohio’s program is designed to be completed in four years (although it should be noted that it can be completed in as few as two years). Regardless of the time structure, an examination of the pedagogical content reveals many similarities.

This study was an initial look at similarities and differences between the two settings. It is recommended that future research examine vocational education teachers from Finland and Ohio related to the following:

- Retention, i.e., do these second-career teachers stay in teaching? What are their reasons for staying or leaving? Are these reasons the same in each setting or do they differ?
- What are the specific challenges vocational teachers in the two-settings face related to student performance, curriculum delivery and program assessment?
- How do vocational teachers in both settings view their professional identity? How similar/different are their beliefs, values, and commitments?
- Job satisfaction, i.e., are vocational teachers content with their work-life balance? The two settings have economic, cultural and societal differences, so how might these affect a vocational teacher’s job satisfaction?

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