

# Career and Technical Education Teachers' Perceptions of Their Profession and Willingness to Encourage Students to Enter a CTE Teaching Career

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This study examined the current climate of how Virginia CTE teachers perceive their profession and if they are encouraging their students to enter the teaching profession. A survey developed by the National Center for Education Statistics was submitted to CTE teachers in Virginia ( $n = 743$ ) to address these questions. Descriptive statistics helped to determine that CTE teachers are generally satisfied with their careers but dissatisfied with factors over which they have no control, and the number of teachers recommending the profession to their students in recent years has decreased considerably. A Pareto analysis was conducted, and the results showed the key reasons why teachers are not recommending the CTE teaching profession to their students are salary/benefits and school variables not in their control.

**Keywords:** CTE teacher satisfaction, teacher perceptions, teacher influence over career choice, teacher recruitment

## Introduction

The number of college students who are preparing to be career and technical education (CTE) teachers is decreasing (Aragon, 2016). Many CTE teacher preparation programs have closed, all while the Virginia Department of Education (2021) reports that CTE teachers are the fifth highest critical shortage teaching area in the Commonwealth. According to the U.S. Department of Education (2016), CTE has remained on the critical shortage list nationally since 2004. Given that employment in this area is in high demand, it would be logical to assume the number of students desiring to enter the CTE teaching profession would be considerable. However, Markow et al. (2013) report that maintaining an adequate supply of effective teachers was a significant challenge, and that the teacher supply continued to diminish disproportionately.

The teacher shortage in the United States is at a critical level and a national concern, potentially leading to a crisis (Darling-Hammond, 2022; Wiggan et al., 2020).

Toropova et al. (2021) reported that teacher satisfaction with their profession continues to decrease and has done so over the past two decades. In a study conducted by Ferguson et al. (2012), they found that teachers were broadly experiencing stress, anxiety, and depression in their profession, resulting in a widespread lack of job satisfaction.

While the role of a CTE teacher is primarily to prepare students for the workforce, they also play an important role in modeling for those students who may want to become a CTE teacher. Research shows that secondary teachers play a significant role in influencing their students to enter the teaching profession (Abotsi et al., 2019; Bastick, 2000). Alston et al. (2020) found that high school teachers played a statistically significant role in students' decisions to enter into an academic teaching major in college. If teacher satisfaction is declining, does that impact their willingness to encourage students to enter the profession? This study aims to determine the current climate of how career and technical education teachers feel about their own profession, as well as whether they are encouraging their students to enter the profession. A better understanding of these phenomena will help CTE college preparatory programs address recruitment needs and fill the dwindling supply of future teachers, as well as inform CTE administrators and principals how to best address the issue.

## **Theoretical Framework**

There are several theories that helped shape this study. Herzberg's theory of motivation to work (Herzberg et al., 1959) included motivating factors (achievement, recognition, the work itself, responsibility, and the opportunity for growth) and hygiene factors (supervision, interpersonal relations, salary, and company policies). Nias (1981) found that both motivating and hygiene factors were important with 100 teachers sampled. More recently, Ferguson et al. (2012) studied depression, anxiety, and teacher satisfaction and found several significant motivating and hygiene factors from their sample.

Social Cognitive Career Theory (SCCT) takes into account a worker's desire to work and reflects upon seven variables regarding job satisfaction: work satisfaction, life satisfaction, personality and affective traits, goal-directed activity, self-efficacy, working environment and outcomes, and goal-relevant and efficacy-relevant environmental supports and impediments (Lent & Brown, 2008). If secondary teachers play a significant role in influencing their students to enter the profession (Bastick, 2000; Papanastasiou & Papanastasiou, 1997), then it is important to understand the factors that may influence teachers' motivation to work and job satisfaction. In addition, their own job satisfaction will likely determine, in part, whether or not they encourage their students to enter the profession.

**Purpose and Research Questions.** The purpose of this study was to determine the current climate of how career and technical education teachers in Virginia feel about their profession, as well as whether they are encouraging their students to enter the teaching profession.

RQ1: What is the current climate of how career and technical education teachers perceive their profession?

RQ2: To what extent are career and technical education teachers recommending that their students enter the CTE teaching profession?

RQ3: What are the reasons, if any, teachers are not recommending the CTE teaching profession?

## Review of Literature

There are concerning trends regarding the availability of qualified teachers. These trends are not new and have been consistently challenging the educational system over the preceding decades, with most U.S. states currently reporting a teacher shortage (Behrstock-Sherrat, 2016). According to the U.S. Department of Education (2016), the education profession continues to experience an increasingly high demand for teachers, which is anticipated to reach more than 300,000 by 2022. In terms of secondary CTE, the demand is dire, as approximately 88% of all students take at least one CTE class at the high school level (National Center for Education Statistics, 2021). This is a real and unprecedented shortage that, if unmitigated, will result in serious implications for the teaching profession (Garcia & Weiss, 2019). Further compounding the shortage is the cost inherent with addressing teacher turnover. An eighteen-month study conducted by the National Commission on Teaching and America's Future (NCTAF) reported teacher turnover costs the nation over \$7.3 billion annually (Carroll, 2007).

In many ways, CTE teachers play different roles within the educational system than do many traditional teachers. Career and technical education is competency-based education, whereby outcomes of mastery are more important than the amount of time it takes to master the competency. This contrasts with variable outcomes assessed by grades (Harden, 2009). Because of the nature of CTE, industry experience is often valued as much in a CTE teacher as formal education. In fact, CTE teachers are often industry certified in their fields, and they, in turn, work with CTE students to acquire industry certifications (Dalton, et al., 2021). CTE teachers prepare students for their future to be college and career ready based on the educational and experiential requirements for a specific career (Fletcher et al., 2018),

Factors attributed to the CTE teacher shortage are many-fold; however, such factors appear to be encompassed in the broader challenge of teacher attrition (Hasselquist & Graves, 2020). Attrition in the teaching profession is not a new phenomenon and is predominantly sourced in job dissatisfaction. The literature reflects a variety of reasons fueling teacher job dissatisfaction which include the most frequently mentioned reasons such as lack of financial stability and unfavorable workplace conditions (Chapman, 1983; Liu & Meyer, 2005). The shortage of teachers is likely to continue to be a problem for CTE, as the teacher recruitment and retention efforts continue to be a challenge within the United States and internationally (Geiger & Pivovarova, 2018).

CTE teacher credentials are important to confirm a CTE teacher's qualifications and give the CTE program credibility (Meyers, 2015). In the United States, efforts have been undertaken by some states toward reevaluating, and possibly lowering, existing teacher licensure and or certification credentialing standards as a short-term measure to mitigation efforts (Devier, 2019). Aragon (2016) found that in terms of the academic degree and years of experience, teachers' salaries cannot compete with the salaries of other similarly qualified professionals working in other non-teaching professions. According to data provided by the Learning Policy Institute (Podolsky et al., 2016), there is a significant salary disparity between teachers and non-teachers, with teachers earning 25% less than their non-teaching counterparts.

From a national lens, the National Center for Education Statistics (NCES; 2015a) conducted a longitudinal study to determine the various reasons a teacher may leave the teaching profession. NCES (2015a) found that salary and mentorship were both tied to retention. Data on

156,100 teachers were analyzed and the results indicated that of teachers who earned \$40,000 or more their first year, 97% returned the year after, compared to only 87% of teachers who earned less than \$40,000. At the fifth year, 89% of those earning \$40,000 or more were still teaching, while only 80% of those earning less than \$40,000 were still teaching. Another factor of importance from this study was mentorship. Of the teachers who were assigned a mentor their first year, 92% returned the next year and 86% were still teaching in their fifth year. Comparatively, 84% of teachers who did not have a mentor their first year returned the next year, and this further declined to only 71% of these teachers still teaching by their fifth year. Other factors that impacted attrition were teaching specialty areas, with STEM and special education teachers having higher attrition rates, and teacher certification, with traditionally certified teachers having lower attrition rates. From this NCES study, teacher satisfaction was also deemed an important factor in teacher decision-making to stay in teaching. School-specific related factors associated with attrition included student disciplinary problems, administrative support, professional development, and teaching materials. External factors associated with attrition were primarily around evaluation, whereas teachers who were evaluated more had higher attrition levels.

Beyond the national perspective, states such as Georgia are interested in understanding their teacher attrition rates. The State of Georgia reported that, as of 2015, 44 percent of the state's public educators would leave the field within their first five years (Owens, 2015). To better understand this attrition rate, the State of Georgia issued a statewide survey to public school teachers, of which 53,000 teachers responded. The survey results indicated that 66.9 percent of teachers surveyed were unlikely or very unlikely to encourage students to pursue a career in teaching. Conversely, only 15.9 percent of teachers surveyed were likely or very likely to encourage students to pursue a career in teaching. The survey also presented a ranking scale of predominant reasons teachers leave the profession but was limited to reasons that are influenced by state policy. The eight reasons were ranked by teachers and are listed here in the highest ranked reason for leaving the profession to lowest ranked: mandated testing (number and emphasis), evaluation methods, teacher-level decision making, non-teaching responsibilities, benefits/compensation, support/development, school and district leadership, and preparation prior to entering the field. Qualitatively, teachers were asked within this survey to articulate what factors could influence the high teacher attrition rate in Georgia. The reasons listed by teachers, in highest ranking order were student discipline, lack of support, both generally and from parents, disrespect, stress, workload, lack of control, and political factors. Park and Johnson (2019) found that career and technical education teachers exit the profession for a variety of reasons, including external opportunities, job frustration, career discontent, or job performance.

Teacher recruitment and retention efforts require funding and resources and thus must be well grounded on federal and or state policy. Aragon (2018) proposes three teacher preparation and support related policies that some states have already enacted through legislation. One of them, the "Grow Your Own Programs," supports new innovative programs aimed to recruit high school students into the teaching profession. Specifically, it affords secondary institutions of learning to develop and implement models aligned with serving special population communities, and in the process, recruit high school candidates or other qualified members of the community to become teachers within the communities they reside. This same policy supports teacher residency programs that provide the needed supervised teacher internships supported by quality mentorship and induction (Aragon, 2018). The prospects of promoting the teaching opportunities

and implementing recruitment at the secondary education level appear consistent with the literature recommendations.

Encouraging students at the secondary and postsecondary level to pursue the teaching profession is an important component of successful recruitment practice. This is nothing new, as other industry sectors pursue aggressive approaches to recruitment that should be emulated to enhance teacher recruitment (Herrmann, 2018).

## Methods

**Participants.** The sample for this study was public school career and technical educators across Virginia as identified by the Virginia Department of Education. The interim director of CTE in the Virginia Department of Education was contacted and agreed to push the questionnaire to all current CTE teachers via an email request. CTE teachers were encouraged to respond to the survey. As an incentive, 10 respondents were randomly selected to receive a \$50 gift card for their willingness to participate. All data were anonymous; however, those who wished to participate in the gift card award needed to provide an email address. Email addresses were extracted from other data so as to maintain respondent confidentiality. It is critical to note that data were collected shortly before the onset of the COVID-19 pandemic, so its presence was not factored into this study.

**Instrument.** The instrument for this study was designed using questions from the National Teacher and Principal Survey, developed by the National Center for Education Statistics (NCES; 2015b), a division of the United States Department of Education. Questions from the instrument are public domain and the subsection of 55 Likert-type questions that addressed school climate and teacher attitudes were extracted from the instrument and imported into survey software. Subsections included questions regarding school policy influence, classroom control, school satisfaction, student climate, and teacher satisfaction. Five open-ended questions were added to the instrument asking about their willingness and history of encouraging students to enter the CTE teaching profession. Content was consistent with both Herzberg's theory of motivation to work (Herzberg et al., 1959) and Lent & Brown's (2008) social and cognitive career theory. Demographic and professional data were also collected, and the survey consisted of 76 total items. The complete instrument can be found in Appendix A.

**Procedures.** The Virginia Department of Education interim CTE director agreed to strongly encourage all Virginia CTE teachers to participate in the study. As such, he directed each of the state's seven CTE specialists to encourage their corresponding subject area teachers to participate and each specialist pushed the instrument to their corresponding teachers via their school email.

To address Research Question 1, measures of central tendency and frequency were reported for each survey item, as well as for each of the five-school climate and teacher attitudes categories: school policy influence, classroom control, school satisfaction, student climate, and teacher satisfaction.

To address Research Question 2, questions included, "How comfortable are you in suggesting to your students that they become a CTE teacher?" (rated on a 10-point scale), "How many students have you encouraged to enter the CTE teaching profession in the past three years (best estimate appreciated)?" and "How many students have you recommended enter the CTE teaching profession during your teaching career (best estimate appreciated)?" Teachers were also asked to identify why they might be reluctant to recommend the CTE teacher profession, as well

as what would help to encourage them to do so. Results from the comfort level question were recoded into ranges, with 0 – 2 being extremely low, 3 – 5 being low, 6 – 8 being moderate, and 9 – 10 being high. The next two questions were used to determine their best estimate of how many students they had actually recommended and were reported as descriptive statistics.

To address Research Question 3, a Pareto analysis was conducted to determine the most repetitive and prominent reasons why teachers may not be recommending the CTE teaching profession to their students. “A Pareto analysis allows for selection of a limited number of responses that produce 80% of the overall effect” (Ketchledge et al., 2021, p. 44). As such, a Pareto analysis should account for approximately 80% of the reasons why current CTE teachers do not encourage their students to enter the CTE teaching profession. Teachers were asked to provide reasons why they would not recommend CTE teaching as a profession to their students. Qualitative responses were compiled, categorized, and coded by the researchers, and each similar response was counted for frequency. Once counted and placed in order of frequency, a Pareto analysis was conducted.

## Results

The following sections outline each research question and the relevant statistics and interpretations associated with each.

*Research Question 1: What is the current climate of how career and technical education teachers perceive their profession?*

**Response Rate.** Approximately 2400 requests were made to CTE teachers to complete the instrument, and 827 responses were received from teachers across the Commonwealth of Virginia, representing urban, suburban, and rural settings. However, only surveys with 50% or higher completion were utilized for this analysis. Of the respondents who completed 50% or more of the survey ( $n = 743$ ), the following tables depict the responses to five scale measures that asked a myriad of questions regarding teacher perceptions on influence, control, and other school satisfaction metrics. Each of the five categories was deemed by NCES (2015b) to be directly impactful to teacher satisfaction. Each question was Likert-type with values ranging between one (1) and four (4). Responses are reported in the order in which they were asked in the instrument.

Of the 743 viable responses, 485 (65%) were female, 249 (34%) were male, and nine (1%) did not answer. There were 712 (96%) full-time CTE teachers, 21 (3%) part-teachers, and 10 (1%) did not answer. The average number of years teaching from respondents was 15.62 ( $M = 15.62$ ), and the median number of years was 15 ( $Mdn = 15$ ). All career and technical education subject areas were well represented. See Table 1 below.

**Table 1**

*Subject Areas of Respondents*

CTE Subject Area	<i>n</i>	%
Agricultural Education	58	7.8

Business and Information Technology	173	23.3
Family and Consumer Sciences	85	11.4
Health Occupations	62	8.3
Marketing Education	104	14.0
Technology Education	98	13.2
Trade and Industrial Education	134	18.0
Other	27	3.6
Did Not Answer	2	0.2

## Findings

The school policy influence responses (Table 2) and classroom control responses (Table 3) ranged from one (1) being no influence and four (4) being a lot of influence. In terms of the school policy influence scale, the scale had a mean of 1.98 ( $SD = 0.61$ ), indicating that teachers felt as though they had limited influence on school policy decisions. A mean of  $> 2.5$  indicates a positive factor. When looking at the individual questions in this scale, only one factor leaned in a positive direction: “Establishing curriculum” ( $M = 2.74$ ). All other factors were below this threshold, with “Hiring full-time teachers” being where they felt they had the least influence.

In terms of the classroom control scale, the overall scale had the highest mean of all the scale categories ( $M = 3.40$ ,  $SD = 0.51$ ), indicating that teachers felt as though they had moderate (3) to a lot of influence (4) on classroom control. The highest means were “Evaluating Students” ( $M = 3.68$ ) and “Selecting teaching techniques” ( $M = 3.66$ ). While still positive, the only mean that fell below 3.00 was the “Disciplining students” factor ( $M = 2.88$ ).

**Table 2**

### *School Policy Influence Variables and Scale*

Variable	<i>n</i>	<i>M</i>	<i>SD</i>
Setting performance standards for students at this school	734	2.31	0.98
Establishing curriculum	732	2.74	0.96
Determining the content of in-service professional development programs	731	2.23	0.94
Evaluating teachers	733	1.61	0.78
Hiring full-time teachers	734	1.59	0.80
Setting discipline policy	732	1.74	0.84

Deciding how the school budget will be spent	731	1.65	0.82
School Policy Influence Scale	734	1.98	0.61

**Table 3***Classroom Control Variables and Scale*

Variable	<i>n</i>	<i>M</i>	<i>SD</i>
Selecting textbooks and other instructional materials	734	3.26	0.92
Selecting content, topics, and skills to be taught	735	3.30	0.87
Selecting teaching techniques	732	3.66	0.62
Evaluating and grading students	734	3.68	0.59
Disciplining students	733	2.88	0.90
Determining the amount of homework to be assigned	734	3.61	0.69
Classroom Control Scale	735	3.40	0.51

The student climate responses (Table 4) ranged from one (1) being a serious problem and four (4) being not a problem. The scale had a mean of 2.71 ( $SD = 0.53$ ), indicating that teachers had an overall positive outlook on student climate. However, there was considerable dispersion between some of the factors on the scale, with means ranging from students dropping out ( $M = 3.19$ ) to students coming to school unprepared to learn being considerably more problematic ( $M = 2.15$ ).

**Table 4***Student Climate Variables and Scale*

Variable	<i>n</i>	<i>M</i>	<i>SD</i>
Student tardiness	714	2.43	0.89
Student absenteeism	714	2.26	0.86

Student class cutting	708	2.83	0.91
Teacher absenteeism	712	3.11	0.86
Students dropping out	709	3.19	0.78
Student apathy	710	2.33	0.96
Lack of parental involvement	713	2.36	0.97
Poverty	714	2.31	0.92
Students come to school unprepared to learn	712	2.15	0.91
Student poor health	713	3.07	0.75
Student Climate Scale	716	2.71	0.53

The teacher satisfaction responses (Table 5) and the school satisfaction responses (Table 6) ranged from one (1) being strongly disagree and four (4) being strongly agree. In terms of the teacher satisfaction scale, the scale had an overall positive mean of 2.86 ( $SD = 0.72$ ), indicating that teachers felt as though they were somewhat satisfied with the teaching profession. Only one factor, “I have as much enthusiasm now as I did when I began teaching” ( $M = 2.47$ ), fell on the negative side. It is important to note, however, that the dispersion of responses in this category was considerably higher than all other scales ( $SD = 0.72$ ).

**Table 5**

*Teacher Satisfaction Variables and Scale*

Variable	<i>n</i>	<i>M</i>	<i>SD</i>
* The stress and disappointments involved in teaching at this school aren't really worth it.	709	3.04	0.89
The teachers at this school like being here; I would describe us as a satisfied group.	712	2.95	0.76
I like the way things are run at this school.	710	2.78	0.85
* If I could get a higher paying job I would leave teaching as soon as possible.	711	2.64	1.03
* I think about transferring to another school.	710	3.05	1.04

* I don't seem to have as much enthusiasm now as I did when I began teaching.	709	2.47	1.06
* I think about staying home from school because I'm just too tired to go.	711	3.10	1.01
Teacher Satisfaction Scale	712	2.86	0.72

\* These items were reverse coded to ensure accurate scale directional value.

**Table 6**

*School Satisfaction Variable and Scale*

Variable	<i>n</i>	<i>M</i>	<i>SD</i>
The school administration's behavior toward the staff is supportive and encouraging.	731	3.21	0.83
I am satisfied with my teaching salary.	729	2.28	0.98
* The level of student misbehavior in this school (such as noise, horseplay or fighting in the halls, cafeteria, or student lounge) interferes with my teaching.	735	3.00	0.00
I receive a great deal of support from parents for the work I do.	733	2.58	0.87
Necessary materials such as textbooks, supplies, and copy machines are available as needed by the staff.	733	3.25	0.80
* Routine duties and paperwork interfere with my job of teaching.	730	2.01	0.92
My principal enforces school rules for student conduct and backs me up when I need it.	733	2.97	0.92
Rules for student behavior are consistently enforced by teachers in this school, even for students who are not in their classes.	730	2.38	0.91
Most of my colleagues share my beliefs and values about what the central mission of the school should be.	731	3.06	0.69

The principal knows what kind of school he or she wants and has communicated it to the staff.	730	3.18	0.88
There is a great deal of cooperative effort among the staff members.	729	3.00	0.79
In this school, staff members are recognized for a job well done.	732	2.92	0.86
* I worry about the security of my job because of the performance of my students or my school on state and/or local tests.	734	3.03	0.95
State or district content standards have had a positive influence on my satisfaction with teaching.	733	2.41	0.84
I am given the support I need to teach students with special needs.	727	2.58	0.93
* The amount of student tardiness and class cutting in this school interferes with my teaching.	728	2.56	1.03
I am generally satisfied with being a teacher at this school.	730	3.33	0.73
I make a conscious effort to coordinate the content of my courses with that of other teachers.	733	3.01	0.81
School Satisfaction Scale	735	2.88	0.45

The school satisfaction scale had a mean of 2.88 ( $SD = 0.45$ ), indicating that teachers had an overall positive regard for their school environment, with 14 of the 18 items on the positive side. The highest means came from satisfaction with being a teacher at their school ( $M = 3.33$ ) and materials and supplies being available as needed by staff ( $M = 3.25$ ). The four negative responses were duties/paperwork interfering with teaching ( $M = 2.01$ ), satisfaction with teaching salary ( $M = 2.28$ ), rules for student behavior are consistently enforced ( $M = 2.38$ ), and state/district content standards positively effect teaching ( $M = 2.41$ ). Table 7 (below) compares the five scales by means and standard deviations.

\*Items were reverse coded to ensure accurate scale directional value.

## Table 7

### *School Climate and Teacher Attitudes Results by Category*

Category	<i>n</i>	<i>M</i>	<i>SD</i>
School Policy Influence Scale	734	1.98	0.61
Classroom Control Scale	735	3.40	0.51
Student Climate Scale	716	2.71	0.53
Teacher Satisfaction Scale	712	2.86	0.72
School Satisfaction Scale	735	2.88	0.45

*Research Question 2: To what extent are career and technical education teachers recommending that their students enter the CTE teaching profession?*

To address Research Question 2, three points of data were collected. On an eleven-point (0 – 10) scale, teachers responded to how comfortable they were in recommending their students to the CTE teaching profession. Responses were recoded into four categories based on range (0 – 2 = highly unlikely, 3 – 5 = unlikely, 6 – 8 = likely, and 9 – 10 highly likely). In addition, they were asked how many students they had actually recommended in the last three years, as well as how many they estimated they had recommended over their career. For both questions, the total number of students recommended was divided by the number of years to arrive at a per year number of recommendations. Because it is not likely that teachers could provide an exact number, they were asked to provide their best estimate.

Of those who responded ( $n = 672$ ), 27% ( $n = 180$ ) responded that they were highly unlikely to recommend the CTE teaching profession to their students, 28% ( $n = 192$ ) were unlikely to recommend the profession, 30% ( $n = 202$ ) were likely, and 15% ( $n = 98$ ) were highly likely to recommend the profession. Note that “highly likely” only included two data points (9 – 10) while the others included three points.

Regarding how many teachers had actually recommended the CTE teaching profession over the past three years, of those who responded ( $n = 692$ ), 33% ( $n = 231$ ) had not recommended the profession to any students, 49% ( $n = 337$ ) had recommended 1 to 5 students, 15% ( $n = 101$ ) recommended between 6 and 25 students, and 3% ( $n = 23$ ) had encouraged 26 or more students to enter the CTE teaching profession. To determine the number of students they had recommended per year, each response was divided by three.

Teachers were asked to provide their best estimate of how many students they had encouraged to enter the CTE profession over the course of their careers. This number was divided by the number of years they had been teaching CTE to produce a per year estimate. Of those who responded ( $n = 686$ ), 52% ( $n = 356$ ) had recommended the profession to less than one student per year, 43% ( $n = 295$ ) had recommended 1 to 5 students per year, 4% ( $n = 28$ ) had recommended 6 to 25 students per year, and 1% had encouraged 26 or more students per year to enter the profession. Table 8 compares the number of students recommended over a career versus over the last three years.

## **Table 8**

*Number of Students Encouraged to Enter the CTE Teaching Profession by their CTE Teachers*

Number	In last 3 years	Per year over the past 3 years	Per year over a career
<sup>a</sup> None	33%	76%	52%
1 - 5	49%	22%	43%
6 - 25	15%	2%	4%
26+	3%	<sup>b</sup> 0%	1%

<sup>a</sup>Note that for the per year average, “None” represents anyone who averaged less than 0.5 students per year.

<sup>b</sup>One teacher said they had averaged encouraging 26+ students per year to enter the profession.

### *Research Question 3: What are the reasons, if any, teachers are not recommending the CTE teaching profession?*

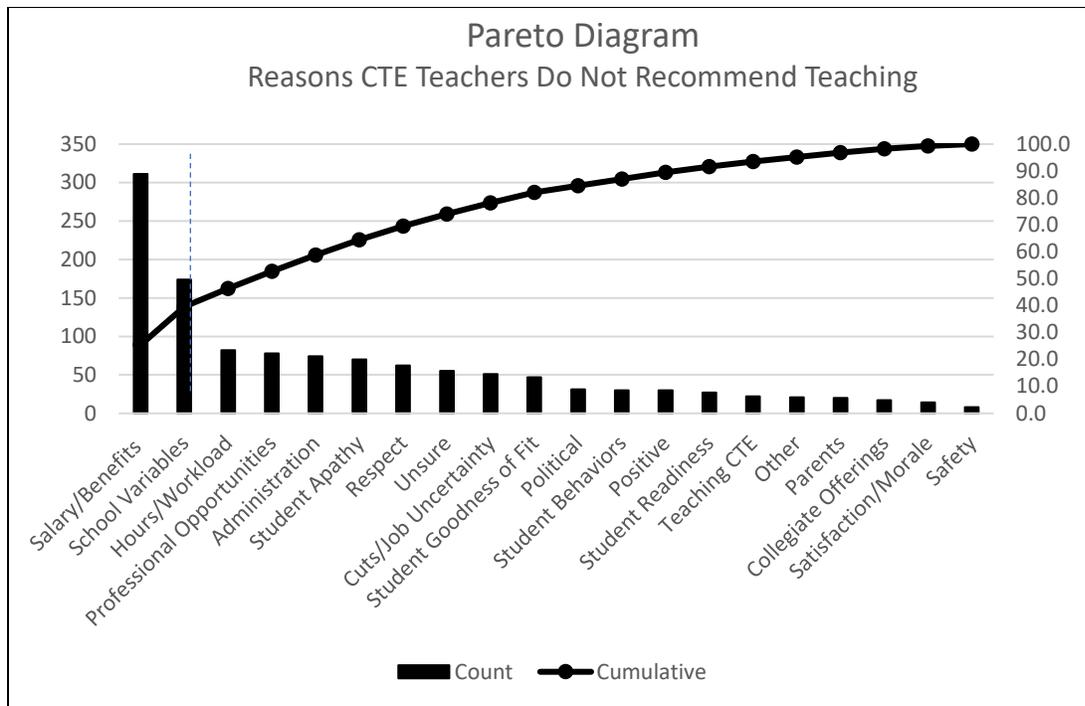
To determine which factors, if any, are most prominent in teachers not recommending the CTE teaching profession, a Pareto analysis was calculated to determine which and how many factors had the greatest impact on their willingness to encourage their students to become CTE teachers. Each respondent was able to provide up to three reasons why they would not recommend the CTE teaching profession. There were 481 teachers who provided at least one reason, and because teachers were able to submit up to three responses, there were a total of 1224 responses. Once responses were sorted, 20 categories emerged.

“Salary and Benefits” overwhelmingly was the most common response, with 64% of those who responded ( $n = 311$ ) including this as a reason for not recommending the profession. This category included responses that indicated that teachers did not make enough money, that taking a job in a CTE professional field would yield much higher salaries, and that the benefits of the field of teaching have declined.

With Pareto analysis, an 80% cutoff is not an exact science and should be modified where appropriate. Researchers should make note of a sharp decline in the counts of the factors to determine the most appropriate cutoff point (Grosfeld-Nir et al., 2007). As such, we examined the Pareto diagram (Figure 1) and determined that “School Variables” also needed to be included as a prominent factor, as a steep decline begins following this second factor. School variables were varied and loosely defined as environmental factors out of teachers’ control, and participants in this category provided responses like there were too many non-teaching responsibilities, an overemphasis on testing, too much paperwork, unrealistic teacher evaluation processes, lack of planning time, too much change, and overly large class sizes. In essence, these quality factors indicated respondents were not recommending the profession because there were too many factors out of their control that were impeding their ability to teach and to enjoy their jobs. Applying the Pareto principle, these two factors account for approximately 80% of the overall effect of why teachers are not recommending the profession, and the remaining factors, while valid, thereby accounted for less than 20% of the overall reasons.

### **Figure 1**

#### *Reasons Why CTE Teachers Do Not Recommend Teaching to Their Students*



## Discussion and Conclusions

**Limitations.** This study includes Virginia CTE teachers ranging in experience from their 1<sup>st</sup> through their 43<sup>rd</sup> year of teaching, and perspectives likely change based on time and experience. Also, the instrument was lengthy, and of those who completed at least 50% of the survey, approximately 10% abandoned the survey before completing it. While the responses appear to be diverse and representative with respect to gender, experience, population density, and CTE subject area, findings may or may not be generalizable to other states.

Conclusions for this study were determined from the data as they relate to the research questions. Research Question 1 examined the current climate of how career and technical education teachers perceive their profession. Findings were mixed with both positive and negative results, but in analyzing the data, it appears as though teachers have a desire or need to be in control of their professional lives. The highest means came from teachers having control of their classrooms scale ( $M = 3.40$ ,  $SD = 0.51$ ). Teachers, in most situations, are permitted to select their own course content, design their own lessons and strategies, determine grading systems and how much homework to give, and even discipline their own students. Conversely, the lowest means, and the only scale to have a negative mean lower than 2.50, was the school policy influence scale. On the items on the scale, teachers responded negatively to six of the seven factors, with four of those factors having means less than 1.74. Teachers felt they had little control or influence over hiring their colleagues, setting discipline policies, input on allocating the school budget, and teacher evaluations. This is consistent with Owens' (2015) findings, which identified lack of control as a major factor in teacher dissatisfaction, and NCES (2015a), which identified several factors that would fall into this control category. Teachers feel that they are in control of their classrooms but want more control of their professional environment

(Sutcher et al., 2016). This is consistent with Herzberg's theory of motivation to work (Herzberg et al., 1959), identifying a myriad of factors that influence a worker's job satisfaction.

Research Question 2 asked whether or not and to what extent career and technical education teachers are recommending that their students enter the CTE teaching profession. CTE teachers were first asked how likely they were to recommend the profession to their students. 45% ( $n = 300$ ) of the teachers that responded said that they were either likely or highly likely, and 55% ( $n = 372$ ) were either unlikely or highly unlikely to recommend the CTE teaching profession to their students.

Teachers were then asked to estimate how many students they had recommended, both over their career and in the most recent three years. Teachers that actually recommended the profession to their students over their careers was 48%, which is consistent with the 45% likelihood of recommending the profession (above). However, that percentage has dropped nearly in half over the past three years, with only 24% of teachers actually encouraging their students to become CTE teachers. This is consistent with Owens (2015) who determined that 66.9% of Georgia teachers do not recommend the profession to their students. It begs the question that if 45% of teachers say they are likely to recommend the profession, why have only 24% done so over recent years? Whatever the reason, this trend is disconcerting. With the current teacher shortage and future projected shortages increasing through at least 2025 (Sutcher et al., 2016), we need existing teachers to encourage their students to enter the CTE teaching profession (Hermann, 2018). It stands to reason that if teachers are becoming less satisfied with their own profession, which is consistent with the findings of Toropova et al. (2021) and Ferguson et al. (2012), they are not as likely to recommend it to others.

The third research question attempted to find the reasons, if any, why CTE teachers are not recommending the CTE teaching profession to their students. The Pareto analysis indicated the top reason teachers do not recommend the profession to their students is salary and benefits. Teachers felt that their students could earn higher wages in an industry other than teaching. Many of the qualitative remarks indicated that students should go to work in their CTE content area directly rather than teaching it. Salary as an obstacle is consistent with findings in several other studies (Liu & Meyer, 2005; NCES, 2015b). Public school systems are non-revenue generating industries, so simply raising salaries to attract and retain more teachers is logistically challenging, so other solutions need to be sought out. This is consistent with Lent & Brown's (2008) social and cognitive career theory, suggesting that those who are dissatisfied with their jobs are less likely to recommend it to others as an attractive career choice.

The other factor identified in the Pareto analysis was school variables, or environmental factors beyond teachers' control such as too many non-teaching responsibilities and too much paperwork. This is consistent with the findings from Research Question 1, where the findings noted that they were pleased with the parts of their job in which they had control (e.g., selecting teaching strategies) and frustrated with the factors in which they had limited control (e.g., school policy), which again points back to control. This is consistent with Owens' 2015 study who found a teacher's lack of control is a key factor in teachers leaving the profession.

Findings are consistent with Herzberg's theory of motivation to work (Herzberg et al., 1959) and Social Cognitive Career Theory (Lent & Brown, 2008), identifying the work itself, as well as the work environment, as key factors in teacher satisfaction. It is logical to assume that if their jobs frustrate them to the point that they are not personally happy with the profession, they are not likely to recommend it to others. As indicated with the Pareto analysis, salary/benefits

and school variables account for approximately 80% of the reasons why CTE teachers are not recommending the profession to their students, both factors being out of a teacher's control.

## **Recommendations**

This study examined the current climate of how Virginia CTE teachers perceived their profession, as well as whether or not they are recommending the profession to their students in an attempt to thwart the CTE teacher shortage. Unfortunately, since data were collected for this study, the teaching shortage has worsened (Darling-Hammond, 2022) which exacerbates the need for new models such as “grow your own” programs (Reed et al., 2022). However, if teachers do not perceive their vocation in a positive light, it is unlikely that they will practice a “grow your own” philosophy and recommend the CTE teaching profession to their students, thereby perpetuating the CTE teacher shortage. The two main reasons for teachers being dissatisfied with their jobs are salary/benefits and school variables not in their control. Because attempting to raise salaries is not likely to happen under our current nonrevenue generating educational structure, school, district, state, and national educational leaders and policymakers should analyze and consider innovative and best practices for improving the professional environment for CTE teachers. Some of these innovative practices could be as simple as sending more teachers to conferences or determining how to provide them with more downtime or other benefits, both intrinsic and extrinsic. Given this study unearthed a lack of control as a major obstacle in teacher satisfaction, leaders and policymakers should also consider ways to provide teachers with more influence over the factors that now challenge them, such as allowing them to have input into the hiring practices of their colleagues or finding ways to streamline paperwork and other nonteaching tasks more efficiently.

Aside from practical applications of improving the environment for CTE teachers, researchers can also assist with this matter by conducting research with administrators to see what they are currently doing and identifying what they might do in the future to increase teacher satisfaction. One way to approach this would be to conduct research with current educational leaders and policymakers; however, studies do not necessarily need to take place with only school administrators. Researchers could also examine best practices in government agencies or business and industry to examine how they are maintaining a positive work climate without necessarily raising salaries to see what existing or innovative practices might transfer to the educational system.

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