

## Article

# Student Retention and Persistence in University Certificate-First Programs

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**Abstract:** While access to higher education has grown over the past few years, significant barriers exist for nontraditional students attempting to prepare for and complete postsecondary education. For these students, the traditional methods for acknowledging student achievement do not always work. This research explored the impact of earning professional certificates on nontraditional students' confidence, motivation, and persistence. Specifically, this study evaluated the matriculation rates between two cohorts of students who participated in the online PathwayConnect program. The mixed-method study found that matriculation rates for students who were encouraged to earn a certificate increased compared to those who followed a traditional path. Analysis of these results suggests that earning a certificate increased students' confidence and motivation to persist in school. Students reported that (a) earning certificates represented a significant achievement and encouraged them to earn more, (b) the certificate allowed participants to obtain better employment, and (c) the satisfaction of this accomplishment improved their desire to acquire new skills. This approach seemed to positively impact on the development of a strong support network that helped diminish some of the traditional barriers to matriculation. Institutions seeking to improve matriculation rates and student persistence might consider providing professional certificates programs in addition to current academic offerings.



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**Keywords:** certificate first initiatives; higher education; university matriculation; nontraditional students; retention and persistence rates

## 1. Introduction

Several studies have reported that individuals who obtain a college degree gain a large economic advantage over those who do not [1,2]. While this may be a widely accepted fact, universities often struggle to retain students [3]. Despite upward trends in university enrollment, increased demand and shifting student demographics have created problems with retention, persistence, student transitioning, technology literacy gaps, confidence gaps, and inadequate attrition remediation models [4]. It is believed that these problems have likely worsened as nontraditional students began to characterize a larger subset of the students seeking to obtain degrees [5–10]. For a variety of reasons, nontraditional students struggle to adapt to and thrive in the unfamiliar academic environment of higher education.

To alleviate the problems of student transition to and retention in college, several institutions of higher education provide programs to remediate and prepare nontraditional students for the challenges of obtaining a college degree [11]. While most college prep programs tend to focus on preparing students by providing opportunities to improve basic study skills and remediating foundational topics, some have attempted to increase retention by emphasizing a certificate-first approach. These programs give students a professional credentialing option that certifies a student has mastered a specific competency or skill [12]. One such program is offered by Brigham Young University-Pathway Worldwide (BYU-PW).

While the BYU-PW program began as a distance-learning program at BYU-Idaho, it is now a separate entity and part of the Church Educational System (CES) of The Church of Jesus Christ of Latter-day Saints. BYU-PW's mission is to provide educational opportunities wherever the church is located. The initial BYU-PW program focused primarily on remediating students' study skills and encouraging them to enroll in a bachelor's degree program. The program sought to help students improve study skills in reading, writing, and math. Designed as an online program, with in-person meetings once a week, the program consisted of classes that students could complete in one year. Upon completion of the BYU-PW program, students received encouragement to apply to the BYU-Idaho online degree program. While it was not necessary for students to complete the BYU-PW program before applying, it was recommended—especially for nontraditional students who have been away from formal education for a period of time.

The BYU-PW program had limited success with dropout rates, similar to other for-profit schools where more than half of the students enrolled end up dropping out [3]. Research on this topic suggested that many of these dropouts only lasted four months before ending their efforts [13]. In the case of the BYU-PW program, well over half of the student failed to matriculate, meaning that even if students completed the BYU-PW program, they did not enroll in a degree, which was the purpose for the program.

To improve matriculation rates, BYU-PW made changes to its program by emphasizing professional certifications. This was based on research such as the 2012 report by the Senate Health, Education, Labor, and Pensions Committee, where it was found that while 63% of students enrolled in an associate degree program ended up dropping out, only 39% enrolled in a certificate program left prematurely. The learning outcomes, content, and structure of BYU-PW's revised program did not fundamentally change from one version to another; however, the program began encouraging students to identify and earn credentials that would count toward future online degrees should they choose to continue their academic pursuits.

The purpose of this research was to examine the retention and persistence of students after BYU-PW's shift in focus to a certificate-first approach. When BYU-PW reorganized its curriculum in 2018 it was noted that student matriculation rates seemed to have improved. This study examined the degree to which matriculation rates improved and explored potential reasons for changes in matriculation rates resulting from a certificate first approach.

This study addressed the following research questions:

1. What was the impact on matriculation rates after BYU-PW's change to a certificate-first focus?
2. How did matriculation rates vary between students overall and in terms of demographics such as age, marital status, and gender?
3. What benefits do students report from earning a professional certificate?
4. What motivating factor most influenced the students' decision to continue their academic studies?

## 2. Review of Literature

It is believed by many that obtaining marketable skills in the form of postsecondary credentials (e.g., a college diploma or degree) is a critical factor to long-term, sustained financial success [2]. Having a degree is also crucial for improving an individual's social mobility [1]. As a financial investment, a college degree opens new opportunities and benefits the recipient for a lifetime [6]. Due to the perceived value and social benefits that a college education brings, it is assumed that all students in the United States should be "college-ready" when they graduate from high school [11]. Not surprisingly, almost 70 percent of all high school graduates in the United States enroll in some form of postsecondary education shortly after graduation [14].

While access to higher education has grown over the past few years, significant barriers remain for many potential students, including financial barriers, poor academic

preparation, and a general lack of support from family and friends [1]. These barriers, along with a growing retention problem, are of such significance that Perlmann and Waldinger [15] believe today's young people will be the first generation in American history to be less educated than their predecessors. The ever-widening gap between those with the opportunity and means to attend college and those without those means and opportunities has led to an increase in alternative college experiences and credentials, including the ability to study exclusively online to earn digital credentials such as badges and certificates [16,17]. Potential employers are increasingly accepting of candidates with alternative credentials; this is a welcomed change from the traditional outlook that only candidates with a traditional degree could apply for and obtain employment [17]. As a result of this gap and the acceptance of alternative credentials, the definition of a traditional student has changed [3].

Traditional students are broadly defined as individuals between the ages of 18–22 who transition directly from high school to a college or other institution of postsecondary education with a full-time status [18]. Nontraditional students are individuals over the age of 23 with either a full-time or part-time status who are seeking a college degree or similar credential [19]. A nontraditional student may start college later in life for a variety of reasons, but 25% of nontraditional students qualify for college only after obtaining a General Education Development degree [20]. Most nontraditional students are the first in their family to go to college [21]. These students do not have the same support systems as traditional college students. Additionally, nearly 30% of nontraditional students are single parents [20]. Many others are individuals that experience demanding life challenges.

Recent evidence suggests that the proportion of nontraditional students has been steadily increasing [22]. Given that the nontraditional student tends to be the most likely to drop out of college, the challenge for many institutions of higher education is to determine how best they might support these students [23]. The future success of these students may be at tremendous risk if additional resources are not dedicated to understanding their challenges and the complicated natures of their lives. There is a growing trend for colleges to offer alternative credentials in the form of professional certificates to serve nontraditional students' needs.

#### *Certificate-First Credential Programs*

The concept of credentials and certificates is not new. The practice of earning credentials in a specific trade issued by an approved or accredited institution dates to medieval times [24]. Some researchers believe that a curriculum based on students earning professional certificates and completing credentialing programs may be the best solution to increase the rate of matriculation and boost retention [25]. The research on student engagement, persistence, and retention suggests a connection between motivation, persistence, and the value of credentialing programs. It is generally acknowledged that alternative credentials have the potential to alleviate a perceived educational void by providing a bridge for nontraditional students to obtain additional education and better employment. Alternative credentials have enabled many students to obtain meaningful employment faster than traditional students and have even enabled them to continue their education until they earn traditional degrees [12]. Kirp [3] suggests that one of the most powerful predictors of increased academic confidence and success is the students' perception of their school's support for their academic, personal, and social needs. In addition to providing exceptional mentoring and support services, assisting students in identifying and earning certificates appears to increase student confidence and persistence rates in matriculating to more traditional online degree programs [26]. This potential phenomenon of nontraditional students earning alternative credentials and then continuing their education may suggest possible increases in student retention and persistence.

In addition to the support identified above, further research suggested that motivation to continue may increase as students gain more academic confidence [27]. Monetary incentives may be the most compelling reason why students choose to continue. Unlike

completing general education courses, completing a credential allows the student to benefit immediately by obtaining better employment or scholarships to offset tuition costs [28]. Bank [29] suggested that students with a postsecondary education that provides professional certificates and credentials will advance in their careers and have higher persistence rates. Certificate programs may produce better workers and more successful university students. Competency-based education (CBE) programs may be an effective solution for improving the educational outcomes of an increasingly diverse student population. Having students obtain professional certificates as they complete their degree may better serve struggling students and provide a bridge for them to obtain higher education and degrees [30]. CBE is also believed to have improved retention rates by improving student engagement and motivation. There appears to be enough research to suggest that students who obtain a credential of any kind, including a professional certificate, are motivated to continue to earn more [17]. However, there is relatively little research regarding the degree to which this happens and why this may be true.

### 3. Methodology

This study was conducted in two phases using an explanatory mixed method design. The first phase of this research examined the increases in retention statistics attributed to the BYU-PW college preparation program's revised emphasis on professional certificates. After BYU-PW refocused its curriculum to a certificate-first emphasis, it was noted that matriculation rates seemed to have increased substantially. To determine the extent to which this is true, we examined matriculation trends of two cohorts of BYU-PW students. This part of the design verified statistically the overall retention rates as well as those for various demographic subgroups.

The second phase of this study attempted to better understand the reasons for changes in matriculation rates. While it is important to note statistically significant increases in retention rates that can be attributed to maintaining a certificate-first emphasis, we also wished to better understand why these changes may have occurred by interviewing students from the two cohorts.

Data collected and analyzed in phase one was intended to answer research questions 1 and 2. Data obtained and analyzed in phase two of this study was intended to answer research questions 3 and 4.

#### 3.1. Participants

At the time of this study, BYU-PW had just over 45,000 total students from 105 countries. Of those students, 54 percent are considered "domestic students" (i.e., living in North America). The remaining 46 percent are "international" (i.e., primarily located in the Philippines, South America, North Africa, and Europe). For this research, we focused only on domestic students from two different cohorts: the Spring 2018 cohort (those who used the original BYU-PW curriculum) and the Spring 2019 cohort (the first group of students to use the certificate-focused curriculum). We focused on domestic students to avoid conflicting variables such as the possible effect of culture on retention and persistence. Institutional Review Board (IRB) approval to conduct this study was obtained from Brigham Young University (BYU).

Students in both cohorts completed three courses over one year as part of the PathwayConnect program. BYU-PW developed PathwayConnect to prepare students for the rigors of college by teaching fundamental math, writing, and study skills. Additionally, both cohorts participated in weekly "gatherings" with other students. Gatherings are designed to help students gain foundational skills, build confidence, and support one another spiritually and academically [31]. The main difference between the two cohorts is the emphasis and expectation that student in the Spring 2019 cohort complete certificates prior to enrolling in their degree program.

In phase one, data from 1416 students was examined. Table 1 presents a demographic breakdown based on the gender, age group, and marital status of participants. Gender

was designated as female or male. Age grouping was done according to BYU-PW age classification which is organized using two different age groups: 18–30 years old and 31 years old and older. Marital status we designated as either single or married.

**Table 1.** Breakdown of Participant Demographics.

Cohort	<i>n</i>	Gender (F/M)	Age group (<31/31+)	Marital Status (S/M)
2018 (control group)	211	120/92	111/101	138/74
2019 (treatment group)	1204	759/445	593/611	742/462
Total	1416	879/537	704/712	880/536

In phase two, we continued our focus on domestic students and interviewed students from the 2018 and 2019 cohorts. There were fifteen students from each cohort with a similar number of students based on gender, age group, and marital status. Of the 15 students from each cohort, we invited 10 who matriculated and 5 who did not.

Following IRB approved protocols, we used a purposive quota sampling technique to select participants to interview. Potential interviewees were identified for each cohort delimited by the three different demographic categories: marital status, gender, and age group. This was done to obtain a diverse sample of those in the participant population for each cohort. Based on our quota selection protocol, 100 students were randomly selected from each cohort as potential participants. These individuals were sent email invitations to participate in this study. The first 15 students from each cohort who replied and indicated that they would like to participate were selected for interviews. The next five students from each cohort who replied were saved in a queue if a participant decided to withdraw from the study.

### 3.2. Data Collection and Analysis

To answer research questions 1 and 2 regarding changes in matriculation rates, this study analyzed student admissions data collected from the BYU-PW and BYU-Idaho registrar's offices in July 2020. Chester [7] suggested that student persistence (retention) is best defined as the number of students who complete the diploma, certificate, or degree requirements of an institution. However, the main goal of the BYU-PW program is to prepare students to enroll in a degree program. Consequently, for this study, matriculation is defined as the number of students who, after completing the PathwayConnect program, then enroll in a degree program at BYU-Idaho. In other words, to be considered a matriculating student, an individual needed to have completed each of the three Pathway courses, enrolled at BYU-Idaho, and remain enrolled for at least three weeks after the beginning of the semester. Those who did not meet these criteria were counted as discontinuing students. Most students (85%) were still enrolled and fully participating in their respective online programs after three weeks; these students were counted as having matriculated. Matriculation rates for each cohort were measured in August of each year and student data was de-identified per IRB protocols.

Matriculation rates from both the Spring 2018 and Spring 2019 student cohorts were analyzed using descriptive and inferential statistics to determine if any significant statistical differences in matriculation rates exist between cohorts. The primary independent variable is the BYU-PW curriculum (i.e., traditional or certificate-first). The dependent variable in this analysis was matriculation rates. As the variables involves are categorical (retention percentages), a Chi-Squared goodness of fit test was used to analyze differences in the matriculation rates between the two cohorts. The proportions of matriculation and discontinued students in the 2019 cohorts (observed values) were compared to the 2018 cohort baseline (expected values). This was done to determine whether there was any statistically significant difference in the proportions. An analysis of the general matriculation rates between the two cohorts was conducted, as well as an analysis based on (a) gender, (b) age group, and (c) marital status.



To answer research questions 3 and 4, student perception data was collected using personal interviews. Data collection was done through two different interview formats: individual interviews and focus group interviews. Four of the interviews were conducted in a group setting to accommodate scheduling conflicts and concerns about meeting online alone. The remainder were conducted individually. The purpose of the interviews was to better understand why students chose to continue their studies after completing the PathwayConnect program. All the interviews were conducted from November to December 2020 via Zoom video conferencing software (version 5.8.1, zoom.us, San Jose, CA, USA). Each interview session was recorded and transcribed. Individual interviews took 45 min on average, while group interviews were 90 min.

Each interview session began with introductions and an overview of the research that was being conducted. Participants completed a short survey followed by a conversation in which participants shared additional information and gave clarification about their responses as needed.

The basis for the interview questions came from examples of effective interview questions from Merriam [32]. Using an open-ended semi-structure interview procedure, participants explained their decision to earn a certificate and reflected on their motivations for continuing or not continuing their academic pursuits. Initial interview questions included:

1. Did you matriculate to BYU-Idaho after completing BYU-PW?
2. Prior to enrolling in BYU-PW, did you have an idea about what subjects or programs you wanted to study?
3. What professional certificates did you choose, and why?
4. Did earning a professional certificate influence your choice to pursue a degree? If so, how?

After the data were collected and transcribed, data were analyzed using a holistic and interpretive stance with an emphasis on key themes [33–36]. Based on the Stake [34] coding method, data were sorted and classified by major categories related to the research question. In repeated analyses of the data, additional themes emerged from the categories. As themes emerged, they were sorted multiple times for further understanding; through this process, topics and subtopics were identified and organized into key themes. The comprehensive analysis, and the study discussion and findings resulted from further analysis and synthesis of all the interview data.

This study relied on Guba and Lincoln's [37] recommendations for establishing the trustworthiness and credibility of the data analysis. Interview themes were reviewed and verified using a peer and member check review processes. Based on the peer debriefing of coding outcomes, adjustments were made to the analysis in order to bring unity to the overall assessment of responses.

For negative case analysis, interview responses were compared to existing BYU-Idaho and BYU-PW data, including prior survey data conducted by each institution, to identify potential differences in results. Findings and categories were evaluated in consideration of any contrary evidence. The researcher then provided the contrary evidence and overall findings to an additional person for external review.

### 3.3. Limitations

While a random selection of students was interviewed for this study, additional interview data with different students will vary. With more than 1416 students from both cohorts, many alternative student experiences, comments, and perspectives exist. Future research may yield different themes, motivations, and findings depending on additional demographic categories. Future research may also include students from other countries and economic backgrounds.

The participants were eager to share their perspectives and seemed to be in good spirits, even though this study was conducted in the middle of a global pandemic (COVID-19). While the students who participated in this study had decided to continue their studies

prior to the COVID-19 pandemic, many may choose to delay their studies due to the ongoing health crisis. This study only focused on understanding students' motivations for continuing their education before the current pandemic.

#### 4. Results

The purpose of this phase was to determine the degree to which matriculation rates had changed after BYU-PW revised its curriculum to a certificate-first emphasis. Table 2 summarizes the matriculation rates for the 2018 and 2019 cohorts.

**Table 2.** Comparison of cohort matriculation rates.

Cohort	Discontinued	Continued	Total
2018 Cohort	177 (83.5%)	35 (16.5%)	212
2019 Cohort	585 (48.6%)	619 (51.4%)	1204

Based on the retention comparison between cohorts there was a 35% increase in matriculation rate from the 2018 to 2019 cohort. Only 17% of the 2018 cohort matriculated into a BYU-Idaho degree program compared to 51% of the 2019 cohort. The difference between the observed values (2019 matriculation rates) and the expected values (the 2018 matriculation rates) was statistically significant ( $\chi^2 (1, n = 1416) = 1066.9, p < 0.001$ ). Not only did a greater number of students complete all three PathwayConnect courses, a larger proportion of student in the certificate-first program went on to enroll in a degree program.

##### 4.1. Matriculation Rates Analysis by Marital Status

Table 3 presents matriculation rates disaggregated by cohort and marital status. There was a 34% increase in the matriculation rates among single students from 2018 to 2019, and a 36% increase in matriculation rates among married students for that time. Both these results were statistically significant ( $\chi^2 (1, n = 920) = 548.0, p < 0.001$  and  $\chi^2 (1, n = 536) = 1007.6, p < 0.001$ , respectively).

**Table 3.** Summary of cohort matriculation rates by marital status.

Student Cohort	Discontinued	Continued	Total
2018 Single	110 (79.7%)	28 (20.3%)	138
2019 Single	335 (45.1%)	407 (54.9%)	742
2018 Married	67 (90.5%)	7 (9.5%)	74
2019 Married	250 (54.1%)	212 (45.9%)	462

##### 4.2. Matriculation Rates Analysis by Gender

Table 4 presents matriculation rates disaggregated by cohort and student gender. There was a 37% increase in the matriculation rates among female students from 2018 to 2019, and a 31% increase in matriculation rates among male students for that time. Both these results were statistically significant ( $\chi^2 (1, n = 879) = 721.5, p < 0.001$  and  $\chi^2 (1, n = 537) = 517.0, p < 0.001$ , respectively).

**Table 4.** Summary of cohort matriculation rates by gender.

Student Cohort	Discontinued	Continued	Total
2018 Female	99 (82.5%)	21 (17.5%)	120
2019 Female	345 (45.5%)	414 (54.6%)	759
2018 Male	78 (82.5%)	14 (15.2%)	92
2019 Male	240 (53.9%)	205 (46.1%)	445

#### 4.3. Matriculation Rates Analysis by Age Group

Table 5 presents matriculation rates disaggregated by cohort and age group. There was a 32% increase in the matriculation rates among students aged 18–30 from 2018 to 2019, and a 37% increase in matriculation rates among students aged 31 and older for that time. Both these results were statistically significant ( $\chi^2(1, n = 704) = 980.9, p < 0.001$  and  $\chi^2(1, n = 712) = 511.9, p < 0.001$ , respectively).

**Table 5.** Summary of cohort matriculation rates by age group.

Student Cohort	Discontinued	Continued	Total
2018 18–30 years	97 (87.4%)	14 (12.6%)	111
2019 18–30 years	328 (55.3%)	265 (44.7%)	593
2018 31+ years	80 (79.2%)	21 (20.8%)	101
2019 31+ years	257 (42.1%)	354 (57.9%)	611

#### 4.4. Phase 2 Results

From the results of phase one, it was apparent that students were more motivated to continue their education when they earned a certificate. The purpose for this phase of the study was to better understand the increases in matriculation rates identified in phase one. Based on the results of student interviews, a qualitative analysis of these students' motivations and perspectives was conducted.

##### 4.4.1. Student Personas

From our analysis of interview data, three different personas emerged that reflect who these students were. The following personas for “Steve, Mary, and Gabrielle” are fictional and do not represent any specific person. They do however represent types of nontraditional students enrolled in BYU-PW.

##### Persona 1

Steve is a 20-year-old, single, white male who graduated from high school but spent a few years living on the streets and dealing with addiction issues. Now sober and living with a relative, he is trying to get his life on track and would like to pursue a career in counseling at-risk children. Because his SAT/ACT scores were low, he could not get accepted into any of the colleges near where he lives. He is working two paid-by-the-hour jobs to earn money for tuition and cannot attend classes taught during the day. He likes the flexibility of online programs that allow him to attend live and recorded classes as his schedule permits. He completed the PathwayConnect program due to the amount of support and mentoring he received. Upon completion of the PathwayConnect program, he was able to earn a certificate that he included on his resume to obtain a higher-paying job. He is in the second semester of his online degree program and performing at a high academic level.

##### Persona 2

Mary is a 32-year-old, divorced, white female with three kids aged 10, 8, and 5. To earn money, she teaches piano lessons from her home and works part-time as a music teacher at a local elementary school. She would like to earn a degree that will allow her to become a full-time music teacher at the junior and high school levels. After graduating from high school, she spent 2.5 years in college taking general education courses and some courses in music. She had relatively good grades and would like to transfer most, if not all, of the 43 credit hours she earned several years ago. Mary enjoyed PathwayConnect and was able to get through all three semesters with relative ease. She is now attending classes at BYU-Idaho as a junior and is 1.5 years away from graduation. BYU-PW helped her realize she could take classes online and become familiar with all the required technology. She also appreciated the ability to take care of her kids and teach piano from her home.



### Persona 3

Gabrielle is 25 years old and met her American husband while he was a missionary in her native country. She has spent most of the past few years learning the English language and working for her father-in-law as a translator. She would like to become a paralegal and continue to work in international law. Learning English was a challenge, but she was able to pass the TOFEL exam and obtain a proficiency level of intermediate-high in both reading and writing. Completing the PathwayConnect program gave her the confidence she needed and the added experience in taking classes in English in order to apply for the BYU-Idaho online program. She is now in her third semester and doing very well.

#### 4.4.2. Trends and Patterns

This study sought to understand why these students completed the Pathway program and made the choice to enroll in an online degree program. What influenced them? What drove their desire to overcome past obstacles? After conducting hundreds of hours of interviews and analyzing the results, some common themes began to form that suggest possible reasons as to why these students' perspectives toward education had changed.

An analysis of the collected data suggested five common themes (in highest priority order): (a) gaining confidence by overcoming familiar challenges and completing the program to earn a certificate, (b) using the certificate to seek and obtain better employment, (c) the development of new skills and abilities that helped participants in other aspects of life, (d) the influence of a strong support network, including instructors, mentors, advisors, classmates, and family, and finally, (e) how the program reduced traditional barriers in applying for and being accepted in a degree program.

#### Theme 1: Increased Academic Confidence

Most of the students in the study could be described as nontraditional students. All the participants shared the fact that they had had negative experiences in education prior to participating in PathwayConnect. While most participants had completed high school, many admitted to dropping out or pausing postsecondary education in their past. All participants shared the fact that they had started and stopped some form of an educational program after high school, such as community college or a degree program, multiple times. School was simply not a positive part of their lives and was a source of increased depression and anxiety. During a one-on-one interview, one student said, "You are told that to be successful, you need to go to school and get a degree. When I would interview for jobs, almost all of them I was interested in required a degree of some sort. So, I would muster up the courage to apply and enroll in classes. Then life would hit in some way, and it was easy just to quit and deal with things. After starting and stopping college many times, you just feel like a loser. You wonder how everyone else can keep going. The most embarrassing thing is showing up to a class you've dropped out of, and the teacher says something like, 'Look who's back!' It's demoralizing".

Another student pointed out that, "I was able to enroll in college and do well for a year or two. Then fees and tuition would go up, and I wouldn't have enough money to continue. You can apply for student loans or borrow money from family but going into debt just seems to weigh me down, especially when you're taking classes that are required but aren't really things that will help me learn the skills I need to get a job. The last time I dropped out, I had a ton of debt and had taken a bunch of classes that were pretty much worthless to me. It's then that you get depressed and just don't want to keep going".

While these comments are not unique, they underscore a common theme that nontraditional students face when trying to earn a degree. Basically, they needed to gain confidence in their ability to succeed.

The study found that 85% of the participants attributed their increased motivation and academic confidence to the fact that they had earned a professional certificate. While pressing participants to explain their responses, a prevailing theme emerged. Most participants' prior experience in education was one of frustration, and most had experienced

negative outcomes. Many of the participant's comments confirmed that the PathwayConnect program was very challenging, and almost all of them shared that they had wanted to quit, as they had done in other programs, on more than one occasion.

The positive comments highlighted the feelings of pride and accomplishment that participants experienced because they had earned something of an academic nature. Many participants declared that this was the first time they had completed a postsecondary program of any type, and the success caused them to want to do it again. Many others commented that the certificate was more than a participation trophy that everyone receives; it was a legitimate award that proved they had done something hard, something meaningful.

A participant from a one-on-one interview said,

"The moment I received my certificate, I was able to share what I had done to earn it. It was not just something you get by showing up. I was able to share in a job interview the skills that I had obtained, such as writing and giving presentations".

Another participant from Interview 3 said,

"This (certificate) was a legitimate sign that I had acquired new skills. The fact that BYU was listed on the certificate was impressive to my boss, and she encouraged me to keep going and to post it on LinkedIn as an achievement. Until that moment, I didn't really have anything past high school on LinkedIn. Once I posted my certificate, I immediately began receiving more messages about other schools and job opportunities. It was magic".

Many participants' comments were centered around the sentiment of being able to share their achievements with others. They also emphasized the moment when they realized that the certificate they earned would count toward additional certifications and degrees.

One student from Interview 3 said,

"The moment I realized that my certificate would count toward earning an associate degree was a game-changing moment for me. I realized that this was just the beginning and that by earning this certificate, I could basically do it again and again and end up with an associate degree. At that point, I realized I was well on my way to earning a bachelor's degree. Once I realized that, I didn't want to quit, I couldn't quit".

Another student from Interview 4 said,

"When you first look at earning a bachelor's degree out of high school, all you see are tons of classes that aren't interesting and are still required. Then you start adding up credit hours and dividing them up by semester, and unless you take a lot of classes each semester, it looks like it would take years and years to complete. Most normal college students can take a lot of classes each semester, but with a job and family, I simply don't have the time. This is super discouraging, and in the past, I'd simply give up. Why bother. But when I did Pathway, they teach you that you can break these up into chunks. Not only are the chunks doable, but at the end of each, you have something [certificate] you can show your boss or friends and family. Then, when you realize if you can do this one, you can do another one. Breaking it up like that gave me hope, and that led to me re-enrolling for the next semester".

One student from Interview 2 said that,

"Earning a certificate at Pathways emphasized the value of education and that higher learning was attainable. I had never earned something like this before, and I realized that if I could do this once, I could do this again. For whatever reason, it created a drive in me to do more. To earn more certifications or add to what I had already done".

A student from Interview 3 said,

“BYU-PW showed me that I was actually smart enough to do college classes, that I had the ability to take college classes without failing”.

Another student from Interview 1 said,

“I never wanted to pursue education before, but Pathway gave me the confidence to pursue education and gain my degree”. A student from Interview 4 said, “BYU-Pathway set me up for success, gave me confidence in my abilities, and showed me I have what it takes, while also teaching me to rely on God in my educational process”.

These comments show that when students realize they can do something positive in an academic setting, it creates a desire to keep going. Breaking up a degree program into smaller pieces like certificates builds academic confidence and gives students the desire to persist and build (or stack) additional credentials that count toward an advanced degree. Awarding students with credentials provides them an immediate return on investment that they can share with friends, family, bosses, and through social media applications like LinkedIn.

## Theme 2: Better Employment

The results of the study revealed that 68% of the participants shared the fact that they had used their professional certificates to obtain better employment. In many cases, the newly acquired certificate had introduced them to a new career field, but most said that it resulted in a salary increase.

One student in Interview 2 said,

“The day after I received my certificate in the mail, I took it and showed my boss and told him I wanted more money! I was amazed when he said, ‘let me see what I can do.’ After a few weeks, I received a bump in my hourly wage that had pretty much not changed for a year or so. I was amazed. That instantly made me want to get another one”.

As one student from Interview 3 said,

“Pathway got me interested in pursuing Life Coach training, which was a job I didn’t even know about. But once I was able to share my story and the certificate I earned, with a friend I was able to get a job with a professional training company. The certificates make things move along in a way I can continue to build on”.

Another student from Interview 1 said,

“I completed the first certificate in the Marriage and Family Studies Degree last semester, and it gave me the confidence to apply for an intern job with a local company. While I don’t yet have a degree in Marriage and Family Studies, my boss was impressed that I was familiar with many of the terms and principles. I will be asking for a raise after I finish my next certificate, as I will also take on additional responsibilities at work”.

Another student from the same interview group followed up with a similar comment:

“That’s exactly what I did! I saw a job that I was interested in that sounded like it required experience in things I had done in Pathway. Normally, I would not have applied because I didn’t have something tangible that I could post on my resume. Being able to post my achievement from BYU Pathway was like bringing my instructor with me to the interview! I felt like I had someone else saying, ‘Yes, she can do that! I’ve seen her do it in our class.’ That thought gave me the confidence and courage to apply. And I got the job! Not only that, but now I’m managing a couple of people and encouraging them to do Pathway like I did”.

A participant from a one-on-one interview shared another aspect of earning certificates that was also confirmed in several group interviews. He said,

“What’s cool about earning multiple certificates is that you can list each one of them on your resume. So, visually it makes it look like you’ve done a ton of school—which I have—but in the past, you can’t exactly list out all the GE credit classes I took. It was cool to list those on a job application and to talk about each in interviews and show how one led to another. The guy I interviewed with, now my boss [applause from other participants], basically just asked me about what the certificates were and how they were connected. It was pretty cool”.

### Theme 3: New Skills

BYU-PW provides opportunities for students to develop academic skills, such as how to study, write effectively, and prepare for tests.

One student from Interview 1 said,

“Pathway prepared me with the basics that most students learn in high school, like how to study and take tests. Even though I’m late to the game, Pathway taught me that I could still learn those skills even after not being in school for 20 years”.

A student from Interview 2 said,

“I have been able to utilize my new skills and knowledge, and I have helped my friend set up a social media account for her business”.

Many students shared that being able to study and write effectively gave them a new sense of confidence in non-academic settings.

One student from Interview 3 said,

“There was a week or two of lessons that focused on how to study. At first, I was like, ‘I already know how to study—I just don’t do it.’ Was I ever wrong! Starting with how to organize your schedule and block off time to study and identify the topics you study and to put it in a calendar really helped. The other thing I learned was to remove distractions like my phone and TV so that I could focus. Dumb little things like that really helped. And they’re things I still do today!”

The ability to write effectively was mentioned by many participants. Specifically, they discussed how writing had improved their ability to communicate in social and professional settings.

A participant from Interview 1 said,

“We had an assignment where we had to learn how to write an effective email. I was pretty skeptical at first, thinking that I already knew how to write an email since I’ve been doing it for 20 years. A few seconds into the lesson, they were talking about how to effectively give an email a title and a structure for how to communicate in fewer words. It was profound. I began using this at work and my boss had me teach the rest of our team what I had learned. It was a cool moment!”

### Theme 4: Support Structure

In addition to building academic confidence, a lot of students talked about their increased confidence in their support structure (including instructors, service missionaries, mentors, and academic advisors). Through the course of the interviews, it became apparent that many of the participants had experienced negative interactions in the past when they had questions or needed help and guidance. One student said,

“One nice thing about the Pathway program is that you can ask a lot of dumb questions, and people will still help you. From the beginning of the program, you have to figure out what you’re going to major in and what certificates you are

going to earn to prepare. Because all the staff are aware of these assignments and that most students have no clue how to choose, they were able to help me figure out what I wanted to do after Pathway”.

Another student suggested that,

“BYU-Pathway set me up for success, gave me confidence in my abilities, and showed me I have what it takes, while also teaching me to rely on God in my educational process. I learned how to ask for help and not be too embarrassed for doing so. I was able to ask our missionaries for help as I was doing homework assignments. Mentors helped me not to give up when I was ready to quit”.

A student from Interview 2 said,

“PW (Pathway) is amazing! Even though I haven’t completed a degree as of yet, the missionaries [support volunteers] and support staff were so amazing. Even if I wanted to quit, they wouldn’t let me, and it got to the point that I didn’t want to let them down.”

A student from Interview 1 said,

“Great structure, guidance, and opportunities set me up for success through Pathways. Pathway is like a ride at Disneyland—once you get on the boat, you really don’t want to get out. If you just sit back and do what they tell you to do, you’ll get to the end. It’s a fascinating support structure that I wish I had earlier in my education”.

#### Theme 5: Reduced Barriers

Many students commented that their confidence and motivation were increased because BYU-PW and BYU-Idaho minimized traditional barriers that college students face by keeping tuition costs affordable, improving access to classes, and providing convenient class times.

One student from Interview 4 said,

“I was able to earn a certificate because Pathway made things that were hard about school easy. First, the lower cost for tuition. Second, all [the classes] are online and mostly doable on my own schedule”.

Another student from Interview 2 said,

“Why did I continue school? Well, the price of the tuition and the support of getting ready through [PathwayConnect] encouraged me. My experience...matriculating to BYU Idaho has caused me to almost stop pursuing through them. They [BYU-Idaho] just don’t quite have the same support structure as Pathway. At Pathway, you pretty much just need to show up and do the work, and if you get stuck, there is always someone there to help. Getting dumped at BYU-Idaho, you feel like you are alone. I won’t give up because Pathway gave me a positive mindset and showed me if I keep working hard, that I am smart enough to continue. But, if the tuition cost goes up, I may not be able to continue”.

Another student in Interview 2 said,

“It was affordable and easy. I did 1.5 years at ASU, and it was the most expensive, time-consuming, difficult thing of my life, and it didn’t need to be that way. As a young single [adult], then [as a] married adult, this was WAY too much and became more of a burden than a joy. BYU-PW offered me something that fit my needs in more ways than one”.

These findings strongly suggest that students who earn a certificate experience increased confidence and motivation, which leads to an increase in persistence, which then increases matriculation rates. While earning a certificate and acquiring new skills seem to be the highest contributing factors, they are not the only factors. This study also revealed



that strong support structures and reduced barriers also play an integral role in bolstering confidence and motivation.

#### 4.4.3. Negative Case Analysis

Included in these interviews were seven students who had completed all three BYU-PW semesters, earned a Pathway certificate, applied for the BYU-Idaho online degree program, and had been accepted into the program, but who had chosen to pause or drop out of the program. While seven participants are a low sample size, each of them shared why they had made the decision not to continue with the online degree program by identifying one of the following three reasons: (a) life situation, (b) finances, and (c) health.

One participant in Interview 1 said,

“Things were going really well until my wife was diagnosed with cancer. I’m a pretty strong person, but that just took too much energy out of me each day to continue. She’s doing really well with treatments, and I will be returning this fall”.

Other reasons that were given included three participants who had lost their job, two who did not have the money and were unwilling to borrow from family or take out a loan, and one who was dealing with anxiety and depression. Interestingly, all but one of the participants expressed a desire to return at a future time. That one individual was a church leader and current federal judge who was curious about how the BYU-PW process worked. He did all the work to complete the Pathway courses and apply for an online degree because he wanted to be able to provide encouragement and motivation to his congregation but felt he could not give authentic counsel for something he had not experienced first-hand.

### 5. Discussion and Conclusions

The purpose of this study was to investigate changes in retention and persistence rates for individuals completing professional certificates through the BYU-Pathway Worldwide (BYU-PW) program. In 2018, BYU-PW modified its curriculum to focus on offering students’ certificate-first programs, rather than solely emphasizing preparation and enrollment in traditional degrees. This “certificate-first” emphasis in the new curriculum requires students to identify and earn credentials that count toward future online degrees if they choose to continue their academic pursuits. The aim of our research was to use matriculation data from two separate BYU-PW cohorts to (a) understand the effect that earning a certificate has on retention and (b) determine what motivated students to continue their education and earn a college degree.

From an analysis of the data obtained in phase one of this study, we found a strong relationship between BYU-PW’s certificate-first curriculum change and an increase in matriculation rates between the 2018 and 2019 cohorts. These findings support prior studies’ assertions [3,26] that earning a certificate increases student confidence and persistence, respectively. The matriculation rates of these two cohorts (one before and one after the PathwayConnect curriculum change) were statistically different. Our analysis of these data shows a 35% increase matriculation rate from 2018 to 2019. This positive trend existed for students regardless of gender, marital status, and age group. BYU-PW’s certificate-first curriculum change appears to have improved retention rates overall and for each of the demographic groups examined in this study.

In addition, it should be noted that there was a dramatic increase in the number of students who completed the certificate-first version of the PathwayConnect program (the 2019 cohort) compared to those taking the traditional PathwayConnect program (the 2018 cohort). Only 211 students in the 2018 cohort completed all three courses in the program compared with 1204 students in the 2019 cohort. While we have no data from students who discontinued the PathwayConnect program as to why they dropped out, BYU-PW personnel believe the decreased number of students completing the degree focused curriculum (as opposed to the certificate-first focused curriculum) was likely due to frustration of students in seeing the

long-range benefits of pursuing a degree as they progressed through the PathwayConnect courses. This perception is supported by finding in phase two of this study and also by finding from Carnevale, Rose, and Hanson [38].

From an analysis of the data obtain in phase two of this study, we identified contributing factors that may have increased student motivation and confidence. While data from phase one uncovered a statistically significant increase in matriculation rates; our analysis of phase two data attempted to help us better understand why nontraditional students' motivation seemed to have increased when they earn a certificate before pursuing a bachelor's degree.

Our analysis of data from this phase suggests that earning credentials in the short term provides students a more immediate benefit which built hope and confidence. Students began to believe that they could achieve a more long-term goal of a bachelor's degree. The immediate benefit of having a professional certificate in hand was important and something most nontraditional students valued; but they also were mindful of the fact that their certification would count towards their degree. Our analysis of student perception data suggests that students may develop more confidence and motivation to persist in school because of five key factors: (a) earning a certificate was a significant achievement and encouraged them to earn more, (b) the certificate allowed participants to obtain better employment, (c) students found satisfaction in acquiring new skills that benefited other aspects of their life, (d) the positive impact of a strong support network was important, and (e) they believed that this approach eliminated some of the traditional barriers to matriculation.

In summary, this research strongly suggests that a degree preparation program for nontraditional students that emphasizes and rewards students for earning a professional certificate increases student confidence and motivation, thus increasing persistence and matriculation rates. While our research provides some additional insight into this topic, more research is needed to fully appreciate the impact of certificate-first programs' ability to motivate students as they work to achieve their academic goals.

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