TEACHER EXTERNSHIP PROGRAM: AN OPPORTUNITY FOR EDUCATORS TO BUILD A RELATIONSHIP WITH INDUSTRIES

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Abstract: It is a tremendous responsibility of teachers to prepare students for the future workforce by exposing them and providing necessary skills as per current demand of industry. It can be challenging for teachers who receive licensure through a traditional teacher preparation program and have not been exposed to the skills used in the industry. Considering this fact, the Massachusetts Department of Elementary and Secondary Education (MA-DESE) allocated funding for the Perkins teacher externship program that offers a common platform for the professional development of high school teachers by connecting the classroom to the workplace. Through a competitive process, Fitchburg State University was selected to manage and administer the externship program in year 2018. This paper reports the challenges, benefits, and the outcomes of the Perkins teacher summer externship program managed by a team of faculty members of Fitchburg State University. In year 2018, 66 quality lesson plans were submitted by the selected high school academic and career and technical teachers. These lesson plans have been recorded and are available in the "Contextual Learning Portal" to interested teachers who wish to complement and enhance their curriculum. It also helps to educators to formulate effective teaching strategies to achieve maximum outcomes and also assists them in designing and implementing classroom activities, projects, and work-based learning opportunities that will add relevance and meaning to students' classroom learning with the first-hand exposure. This program also provides the opportunity for educators to build a relationship with companies. Moreover, this paper presents benefits of the externship program not only for teachers but also for the externship hosting companies.

Key Words: *Education, leadership, workforce, technology.*

1. INTRODUCTION

Industries are transformed or being transformed with the development of technology. There is a high demand of skilled workforce with recent knowledge of technology and skills. It is a tremendous responsibility of teachers to prepare students for the future workforce by exposing them and providing necessary skills as per current demand of industry. It can be challenging for teachers who receive licensure through a traditional teacher preparation program and have not been exposed to the skills used in the industry (Bowen, 2016). Therefore, teachers must constantly update their own knowledge and skills about current workplace practices, requirements, and tools by gaining an "on the ground" understanding of economic and career trends that will affect their students (Career Academy Support Network, 2010). To keep up to date, various types of workplace experiences are adopted based upon requirements and target group, such as student internships, teacher externships, job shadowing, informational interviewing, and service learning. Among them, teacher externships provide a peer-to-peer learning environment to teachers (CASN, 2010). The duration of externship may range from a day of job shadowing to longer period depending upon objectives of externship. Some project-based externships can last as long as a full summer.

Considering this fact, Fitchburg State University organized and administered a teacher externship summer program funded by Massachusetts Department of Elementary and Secondary Education (DESE) in 2018. The Perkins Teacher Externship Summer program offers a common platform for professional development of high school teachers by connecting the classroom to the workplace. According to Career Academy Support Network (CASN) (2010), externship programs provide actual field experience in which teachers spend time in a workplace to learn through direct experience about current technology, trends, required skills, opportunities, and challenges in industry related to their field of study in order to enrich and strengthen their teaching and bring relevance to student learning. Teacher externships offer a professional development experience that is often transformative for educators and their students (CASN, 2010). The externship experience helps teachers connect classroom content with students' future career interests and helps students develop both the academic and technical skills required in the world they are preparing to enter. It provides educators with the exposure to answer questions about real-world application and also helps to prepare students for their future careers and improve educational experiences (STEM Advisory Council, 2011).

This paper reviews the literatures depicting various types of externship programs and their significant role in the preparation of educational strategy. Author presents the methodology adopted to conduct the Perkins Teacher Externship Summer program and its benefits and outcomes. In addition, this study investigates the extent to which the phenomenon of teacher externship can be used as an initiative for creating long-lasting and strong collaborations between institutions of higher education and organizations/industries. The finding of this research not only contributes to the body of knowledge but also develops a foundation for designing the systematic strategy for effective externship program and addresses the lack of policy or strategy to resolve the skilled and techno-savvy workforce shortage issues.

2. BACKGROUND

In today's globalized and technological fast changing world, it is important to update curriculum with the recent development to prepare students with the required up-to-date knowledge and skills as per current industry demand. As many teachers have earned teaching licenses through traditional methods, it may be challenging tasks for teachers to increase student engagement in activities that help prepare them for the future workforce if they do not know how industry is currently using different processes to solve technological problems (Ignite, 2017). Considering such a learning gap, the idea of externship program for teachers was developed to provide opportunity to work and learn in the industry environment so that they can bring valuable knowledge back to the classroom (Barrett & Usselman, 2005, Bowen 2015).

Typically, a teacher externship program is referred to "a summer work experience in an environment that engages the teacher in engineering or design-based activities in order to gain a practical understanding of how industry uses current tools, processes, and resources to solve technological challenges" (Bowen & Shume, 2018). There are many teacher externship programs being implemented in national and regional levels. The National Science Foundation's Scientific Work Experience Programs for Teacher (SWEPT) and Research Experiences for Teacher (RET) are two popular externally funded programs for teachers to gain industry and research experiences (Bowen & Shume, 2018). Ignite program (previously called as the Industry Initiatives for Science and Math Education Program) was initiated in 1985 to place teachers into industry positions in STEM-related fields for 8-weeks summer work experiences in California. After completion of on-site experiences, the participated teachers were required to produce an Education Transfer Plan for integrating the knowledge gained through the work experience into the classroom (Ignite, 2017). Since 1991, the Georgia Institute of Technology sponsored Georgia Intern Fellowships for Teachers (GIFT) program and placed on average more than 75 teachers per year in university and industry settings to gain practical knowledge about current industry practices (CEISMC, 2017). In collaboration with university faculty, local economic development corporations, education cooperatives, and business in the upper Midwest region, the Educators in Industry: K-12 Externship program was initiated in 2011 to provide opportunity to in-service teachers to experience how corporations were using the engineering

design process (EDP) and 21st century skills to solve technological challenges (Bowen & Shume, 2018).

Studies shows that externship programs were successfully conducted not only for engineering and technology sectors but also health sectors and others, such as pediatric externship program (Patel et al., 2012); externship program on clinical education (Adamczyk & Mozlin, 2013); externship program on nursing (Balsam & Reuter, 2018); externship program related to law education (Jordan, 2016); STEM education externship (Choi & Linton, 2020). Fitchburg State University administered the Perkins Teacher Summer Externship program for academic and vocational programs. This program is a common platform for professional development of high school teachers in Massachusetts. The objective of this program is to provide actual field experience in which teachers spend time in a workplace to learn through direct experience about current technology, trends, required skills, opportunities, and challenges in industry related to their field of study in order to enrich and strengthen their teaching and bring relevance to student learning (CASN, 2010).

3. METHODOLOGY

Administering a valuable teacher externship program is a challenging job as it requires thorough knowledge of processes, detailed information, and collaborations with concerned parties. For this, author of this paper who is one of the members of the Fitchburg State University externship team, conducted extensive literature reviews to find if there are sufficient research conducted on externship related topics. The primary goal of the literature reviews was to establish an effective mechanism and to create necessary documents and forms so that the Perkins Teacher Summer Externship program could successfully organize and achieve targeted benefits for participated teachers and DESE. Based on working experiences in this project, author developed an externship program flow chart. Author also investigated the extent to which the phenomenon of teacher externships can be used as an initiative for creating long-lasting and strong collaborations between institutions of higher education, public organizations, and private organizations in Massachusetts.

3.1 Define Externship Program

Figure 1 shows the flow chart – a methodology of the Perkins Teacher Externship program. Considering the potential benefits from the externship, the Massachusetts Department of Elementary and Secondary Education (DESE) decided to start summer externship program for high school teachers in 2018. The DESE selected Fitchburg State University's (FSU) proposal to administer the Perkins Teacher Externship Program from competitive approach based upon technical and administrative competence. After discussion, the DESE and FSU team defined the scope, working procedure, and outcomes of externship program.

3.2 Coordinate with Concerned Parties

Major concerned parties for this program are DESE, Fitchburg State University (FSU) project team members, Regional MassHire Workforce Boards, selected teachers for externship, and employers (companies who provide externship sites for teacher externs). The DESE provided the grant to Fitchburg State University for stipends to participating teacher externs and for project management. The DESE also coordinated with the Fitchburg State University Externship Program management/instructional team and regional MassHire Workforce Boards. The DESE actively monitored the work progress and also participated externship related programs organized by Fitchburg State University.

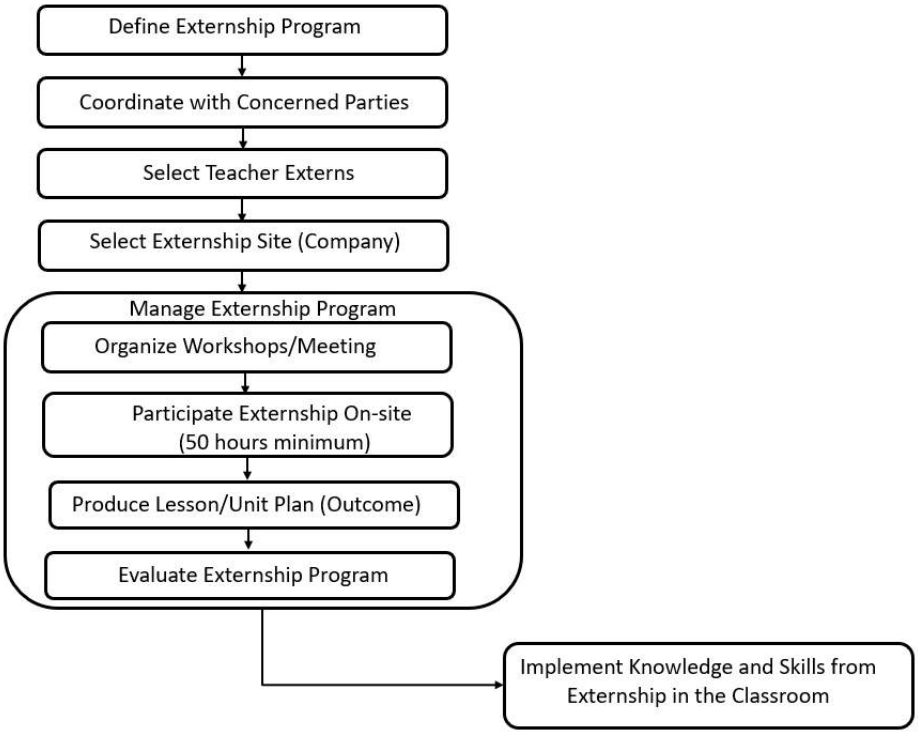

Figure 1 Externship Program Flow Chart

3.3 Select Teacher Externs and Externship Site

Twelve regional MassHire Workforce Boards were represented in the program from across the State of Massachusetts. Each Board selected two to four high school teachers based upon their regional prioritized selection criteria. The Regional MassHire Workforce Board was responsible for the externship site selection based on selected teachers' career field and related to courses they taught. For example, teachers who used to teach health careers and health technology, they did their externship in hospitals or medical center.

3.4 Manage Externship Program

The FSU externship team was responsible for managing and administering the externship program. The management team consisted of three full-time faculty (Dr. James Alicata, Dr. Wayne Whitfield, and Dr. Nirajan Mani) and one Adjunct faculty (Andrew Patenaude) from the Engineering Technology Department. The management team offered three one-day externship meetings. First meeting was for orientation program to provide information regarding externship program to participating teachers, such as overview of the project, externship site visits, administrative process, available resources, expected outcomes, and implementation of knowledge and skills obtained from externship in their classroom settings. A zoom webinar was conducted as a second meeting to inform participating teachers about upcoming meetings, additional information regarding assessment instruments, and assignments. During discussion session in the third follow-up meetings, teacher externs shared their project experiences with others and worked cooperatively developing their lesson plans.

This externship program was to provide a valuable professional development opportunity for teachers who support academic and technical integration for students. This experience enabled teachers to participate in new and emerging technologies, ensuring rigor and relevance in their curricula and instructional teaching methods. The extern teachers were responsible to actively participate workshops held at FSU; learn during approved 50 hours (minimum) externship and submit a lesson plan. Extern teachers were given the opportunity to earn additional graduate credit by preparing additional lesson plan.

The site supervisor at externship employer site provided necessary site-specific information, acted as resources to teachers in the development of their lesson plans, and monitored and evaluated each individual extern based upon their successful experience with the program.

3.5 Implement Knowledge and Skills

All lesson plans submitted by externs were reviewed and approved by the FSU team and posted on the Contextual Learning Portal for future references. All externs were encouraged to use these lesson plans for teaching in their classrooms and to share their externship experiences with others.

4. RESULTS AND DISCUSSION

A total of 66 lesson plans were received from participants. After thoroughly reviewing all lesson plans, these lesson plans were classified into different clusters, such as Academics (Math), Academic (English), Agricultural and Natural Resources, Art and Communications Services, Business and Consumer Services, Education, Health Services, Hospitality and Tourism, Information Technology Services, and Manufacturing, Engineering and Technology. The selected reflections were posted in the Contextual Learning Portal (http://contextuallearningportal.org/).

Many teachers were visited individually through an on-site interview or an online interview. During these interviews, discussions were held with the supervisor at the externship site in addition to the participated extern. The responsibilities assigned to the teacher were discussed as well as the individual strengths of each teacher. The specific details were made available on a general basis, respecting individual corporate trademarks and product confidentiality agreements between the teacher and the employer. Specific skills that teachers brought to their employer were identified and general job demands, such as measuring, calibrating and familiarity with specific commercial software were recognized. A minimal review of individual career and technical education curriculum and strands were discussed at the meetings. Many employers ranked employability skills as the highest priority. This was the case in many organizations where specific technical skills were considered secondary to employees demonstrating consistent attendance, and attention to details of work assigned to them. Many teachers provided a specific service for their employers which were reflected in their lesson plans.

All of the employers recognized the value that teachers held in communicating the opportunities that are available through their organizations to their students when they return to their schools. Employers were interested in developing a pathway to encourage and recruit future employees and saw the teacher as a conduit in this process. The employers recognized the value of education providing skills, such as problem–solving and application of academic subjects in a real work situation. Employers were also interested in a foundation level of skills where they could enhance and build upon to meet the specific needs of their organization. Several employers stated that an employee with a willingness and aptitude to learn and a positive attitude could advance to the highest levels within their organization. Several employers were impressed with the level of expertise and skills learned by high school students and made a conscious effort to consider recruiting high school seniors as summer interns to fill positions recently offered to college sophomore students.

5. CONCLUSIONS

Externship program provides actual field experience and provides opportunity to learn through direct experience about current technology, trends, required skills, opportunities, and challenges in industry related to their field of study in order to enrich and strengthen their teaching and bring relevance to student learning. It provides the opportunity for establishing strong ties between industry personnel and educators. Employers or companies were interested in developing a pathway to encourage and recruit future employees and saw the teachers as a conduit in this process.

Perkins Teacher Externship funded by the Massachusetts Department of Elementary and Secondary

Education (DESE) and administered by Fitchburg State University was successfully completed. In year 2018, total 66 lesson plans were submitted by fifty high school academic and career & technical teachers. These lesson plans were reviewed by a team of faculty members of Fitchburg State University in accordance to externship guideline set by the team. The selected externship lesson plans are available in the "Contextual Learning Portal" (http://contextuallearningportal.org/) to interested teachers who wish to complement and enhance their curriculum.

The initial goal of this program was to identify the specific skills needed for different levels of employment in the organizations offering externship for high school teachers. It was our belief that students could enter the company at different levels or positions based upon the skills required to perform each position. Through this program study, we learned that the economic demand for a trained workforce is so great that companies will take the responsibility of providing training and advancement for positions they are interested in filling. Several employers identified a new model or paradigm for an employee to advance in their career. Historically, employees would attend post-secondary educational institutions and receive associate, bachelor, and graduate degrees prior to seeking employment based on the application of the skills and knowledge learned. It was brought to our attention that with the advances in technology and distance learning an employer could and would be willing to guide and sponsor an individual's training and advancement while they maintained employment at their company. As employees are progressing in their degree programs or skills measured by a license become completed, employees would become eligible for advancement in their organizations. Upon completion or progress made in programs, employees would be able to move from support positions to technical positions to management and eventually executive positions within the same company.

6. ACKNOWLEDGEMENTS

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