

Chapter 13

Continuing Professional Development for Secondary Food Technology Teachers in New South Wales (NSW), Australia



Carly Saunders

Abstract The case for continued professional development is a compelling one. This statement is prevalent because no matter how outstanding pre-service education is, the fact is that teaching is and always will be ever-changing. Despite the mandatory requirement for a bachelor's degree, the difference in teacher's knowledge and ability is vast. In order to assist our students to have a fair and equitable education, we need to address this and consider how things like high-quality resources, sharing ideas and pedagogical strategies can help to bridge the gap.

This chapter aims to examine the needs of teachers in preparing their Food Technology students for the future through qualitative research surveys of 241 NSW teachers and observational research of the 1066 attendees to our Teacher Professional Development courses.

Keywords Professional development · Food technology · Mandatory accreditation

Introduction

Valid, relevant and fulfilling professional development for teachers is essential if it is expected to impact and engage twenty-first-century learners in schools. However, not all teacher professional development is created equally. In examining the needs of our teachers, we have discovered that teachers are 'time poor' and this can impact the quality of the resources they create and thus the engagement of their students. The diversity of topics in our NSW Stage 4 (ages 12–14), Stage 5 (ages 15–16) and Stage 6 (ages 17–18) Food Technology syllabus can also impact teacher's ability to link student's acquired knowledge and their ability to apply it. With ever-changing content such as innovation in food design, food trends, food product development

C. Saunders (✉)
University of Newcastle, Callaghan, NSW, Australia
e-mail: carly@tpd.edu.au

and emerging technologies in food, teachers can find it challenging to stay abreast of trends and remain current. Teacher professional learning standards must be implemented meticulously to ensure best practice is a priority and to support teachers in lifelong learning.

In 2017, the NSW Education Standards Authority (NESA) mandated that all teachers must accrue professional development hours to maintain teacher accreditation. NESA Registered Professional Development can only be delivered by Endorsed Providers who have completed a rigorous assessment and approval process. This assists in screening the copious amounts of teacher professional development available. The Happiness Mission® became an Endorsed Provider of NESA registered professional development (PD) in November 2016. However, the length of time and processes that must occur to wear the NESA Endorsed Provider badge were unexpected as the process is elaborate to ensure that NESA can assure each provider's integrity, responsibility and suitability for such a role.

The process began in March 2016 and the application checklist involved hours of planning, research and gathering articles and documents. Information included: procedures in place to assure the quality of presenters; presenter's qualifications; relevant background/experience; presentation screenshots; hand out samples; fundamental research and examples of feedback. Alongside this, Australian Business Number and policies and procedures to assure the quality of delivery and evaluation of courses were required. Marketing and advertising evidence were also supplied to ensure the advertising of professional development products and services were both appropriate and ethical.

Two provider sessions with NESA staff in Sydney were mandatory to attend. The sessions were designed to simplify the process and support NESA providers with any questions or concerns. We met other providers who were applying to teach all manner of different teacher professional development courses, from perfecting golf skills for Personal Development, Health and Physical Education (PDHPE) teachers to understanding the importance of sleep on wellbeing and resilience. It was interesting to see all the different reasons for people wanting to become a NESA provider, but one common theme was the willingness to want to help teachers.

The Process of Accreditation

NESA assisted us to provide appropriate content for the professional standards that The Happiness Mission® was approved for:

Standard 2—Content and teaching strategies of the teaching area in the proficient focus area: 2.1.2 Apply knowledge of the content and teaching strategies of the teaching area to develop engaging teaching activities.

This specific focus area required much consultation with NESA because of the language 'content', 'teaching strategies' and 'engaging'. Each activity planned for the professional development days needed to encompass teaching strategies that were directly related to the syllabus outcomes and dot points, and they needed to be

engaging in a contemporary manner. Resource samples were provided, and NESAs would provide feedback and suggestions for improvement.

Standard 6—Engage in professional learning: 6.2.2 Participate in learning to update knowledge and practice, targeted to professional needs and school and/or system priorities was simpler to plan for.

It was mandatory to produce evidence that the courses were updating teacher's knowledge in the Food Technology content area. Samples of the presentation and current research examples assisted NESAs to see that the courses would demonstrate Standard 6 requirements.

The first course ran in Sydney in November 2016. It was called 'Teaching Higher School Certificate (HSC) Food Technology Successfully'. It sold out in a matter of days as teachers had expressed the complete lack of professional development opportunities that were content specific for Food Technology teachers. Through feedback forms, which are a compulsory element of any NESAs registered course, it was discovered that teachers wanted more courses, and so 'Teaching Preliminary Food Technology' ran shortly after.

The following year, 2017, two more courses were launched: 'Year 9 Food Technology Fun' and 'Year 10 Food Technology Recharged'. These courses were based on the Stage 5 syllabus and included resources, teaching strategies and assessment tasks. NESAs also sent employees to attend our courses to ensure our processes, procedures and policies were of exceptional quality. Our duty was to keep accurate, secure files which contained sign on attendance sheets, feedback forms and any email correspondence. It became apparent that the courses should be taken on the road, and we began running courses from Sydney, Newcastle, Wollongong, Coffs Harbour, Dubbo, Orange, Wagga, Tamworth and Ballina.

When NESAs released the Technology Mandatory Draft Syllabus, which included a variety of significant changes in the Stage 4 syllabus it became apparent that resources to assist the successful implementation of the new syllabus were required. The new course 'Technology Mandatory, Agriculture and Food Technologies' took up the majority of the first 6 months of 2018. From there 'Technology Mandatory, Materials Technology, Textiles Focus' became a priority for the second half of 2018. Due to the number of courses accredited with NESAs by then, The Happiness Mission[®] was awarded a scope for the two standards which meant other presenters could produce courses under our accreditation banner.

However, it was mandatory that we still provided quality content delivery and had policies and procedures in place to prove such quality. The Happiness Mission[®] now has five other presenters in the areas of 'Technology Mandatory, Engineering Systems', 'Cake Decorating Skills', 'Textiles and Design Drawing', 'Community and Family Studies' and 'Hospitality at Your Service'. It is our responsibility to upload all course plans, feedback forms, sign on sheets and event plans to NESAs. NESAs is very strict about the feedback. They independently survey the participants and withhold professional development points until the surveys are completed. There is a need to ensure that most of the feedback is excellent or NESAs will remove the course from our scope.

Data Collection and Analysis

The value of the feedback is priceless. We learn so much about the needs and wants of our teachers in these forms and the comments and questions they ask at the courses. We have built a community around our teachers. They share resources, strategies and questions on our social media forum.

The survey was distributed via email to the Food Technology teachers who have attended our courses. When asked to complete the qualitative survey research for this chapter, 241 NSW teachers agreed and submitted responses. The data was analysed by reading all the responses and looking for similarities and trends. This assisted us to find themes and categories within the responses. The research did not require State Education Research Applications Process (SERAP) clearance because it is considered a survey opinion poll, but we requested that teachers ask their principals permission before submitting a response.

There were no criteria to choose; teachers simply responded with what professional development opportunities they would like. The responses were invaluable to see where the gaps in knowledge were for the 241 NSW teachers ($N = 241$) (Table 13.1).

Table 13.1 Saunders (2018) ‘What professional development courses would prepare you for teaching future food technology students?’

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Analysis of Findings

In this section, the discussion will focus on the six most popular responses:

- a. Practical, hands-on, recipe testing, cooking on a budget, cooking to an hour time period

This response brought to the forefront the changes in Food Technology education and how they have affected teachers and students. In many ways, Food Technology education is occurring differently than it has in the past, including time. Many teachers responded that they have had their period allocation reduced to 1-h, where they have had the luxury of double periods (usually around 75–80 min) in the past. A common issue raised within their courses is the need for recipes which can be altered to reduce cooking time.

Many schools have opted for shorter periods with the aim to keep students engaged and to keep behaviour corrections to a minimum, for example school timetables which previously only had four periods have increased the periods to five or six. As a result, student's lessons are broken and for Food Technology teachers this has impacted on the skill level of the practical recipe which can be attempted. Andersen, Humlum, and Nandrup (2016) claim it has proven to be a major challenge to determine how different educational resources, such as instruction time, affect student learning. However, through a large-scale randomised trial they have presented evidence that increasing instruction time in school increases student learning. It is interesting that despite this, the time in each period is reducing in many NSW schools.

In many of our course teachers ask for cheaper options, or ingredients that can be removed or replaced due to low budgets for teaching in low-socioeconomic schools where parents often do not have the capacity to pay fees. Many rural teachers also find it difficult to source produce what is not stocked in their local supermarket. Less common ingredients such as rice malt syrup or agave syrup (common sugar substitutes) cannot be purchased easily in country supermarkets. Likewise, it is not always accessible to source fresh fruit and vegetables. To ensure teachers are fully equipped to teach students in their current circumstances, it is imperative that they are given the opportunity to access professional development that suits the requirements of their school. This could be an external course that they attend or an in-service session within their school with other expert staff members, planning and organising the practical lessons to maximise student learning opportunities.

- b. Stage 6 HSC compliance expecting teaching students to excel with examination responses

This response demonstrates the need for subject-specific, content-driven professional development. Food Technology student enrolments for Stage 6 have been steadily declining as demonstrated in Graph 1. This is a concerning trend and does not follow the patterns of the NSW HSC total candidature visible in Graph 2 (Fig. 13.1).

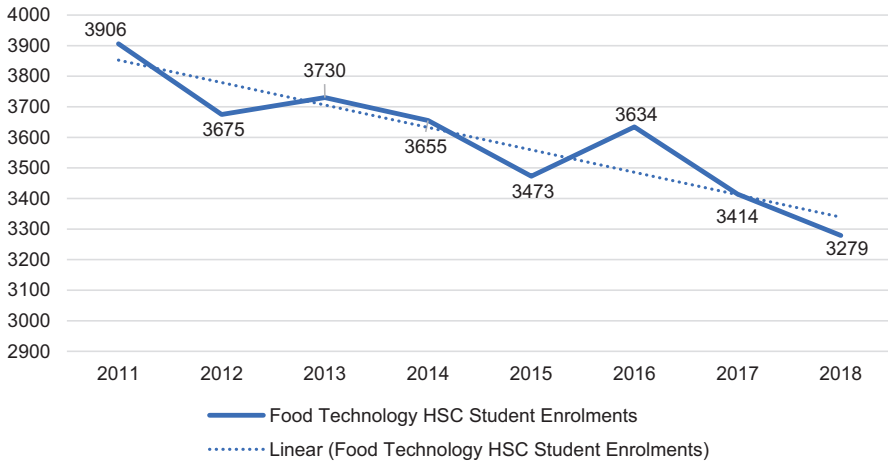


Fig. 13.1 Board of Studies Teaching and Educational Standards NSW (2018) NSW *Food Technology HSC Student Enrolments from 2011 to 2018*

HSC compliance is a reported source of angst for NSW teachers. High expectations, pressure from parents and executive staff and the responsibility for students' futures can mean that the staff feel overwhelmed year after year. Richardson, Watt, and Devos (2013) believe that teachers worn down by their work exhibit reduced work goals, lower responsibility for work outcomes, lower idealism, heightened emotional detachment, work alienation, and self-interest. The HSC compliance workload is likely to impact more on new teachers, as they may lack the experience and resources required to teach HSC Food Technology effectively. When teachers become burnt out, or worn out, their students' achievement outcomes are likely to suffer because they are more concerned with their personal survival.

The 'Teaching HSC Food Technology Successfully' course has been popular despite the declining HSC Food Technology student enrolments. The Happiness Mission[®] is an endorsed provider and so we receive Provider Course Evaluation reports from NESA. The anonymous comments provide feedback on what participant's value in the course. Participants value the opportunity to update knowledge targeting Stage 6 HSC Food Technology syllabus requirements, receive current teaching and assessment resources.

Avalos (2011) reports on the effects of professional development on student outcomes supporting the view that student outcomes generally improved as teachers learned to adapt teaching to individual student needs. The necessary nature of teacher professional development is supported by (Craig, Meijer, Broeckmans, & International Study Association on Teachers and Teaching, 2013), who state that teacher satisfaction increased in relation to professional development activities considered to be 'close to home', relevant to their needs and expectations and when they contributed to the improvement of curricular understanding and increased self-efficacy. Content knowledge is important, but the method of delivery is vital if participants are going to leave the experience motivated and willing to engage their students.

c. Innovative ideas, strategies, best practice pedagogy

This theme demonstrates the importance of the delivery method to our teacher participants. Syllabus insight is of utmost importance but if we cannot engage students in the content there is little chance that they will retain and apply the knowledge. Leithwood and Riehl (2003) second this notion, stating that teachers' instructional practices have been shown to have a significant effect on student learning. Engaging teachers in sharing what's working well for them has a real impact on their satisfaction during the professional development experience. For example, the opportunity to share insights, recipes, strategies and pedagogical experiences correlates with positive feedback in the course reviews. A sense of accomplishment and shared growth is present when teachers have the opportunity to offer their stories of success.

A major reason why this strategy is important for Food Technology teachers is that often, particularly in smaller schools, there may only be one Stage 6 Food Technology teacher. It can be isolating and lonely when you cannot share achievements and ideas with colleagues. Professional development experiences that allow teachers to share often allow teachers to get a wider understanding of how the subject is taught in different regions. It can also allow teachers to leave feeling proud of what they facilitate in their own schools. Participants have supported this in their NESAs course evaluations stating:

Networking with other teachers and discussions with the presenter on student engagement helped with implementing the strategies in my class.

It helped to hear from colleagues their experiences and ideas.

The provision, discussion of and practice of implementing suggested activities really helped my level of understanding and confidence.

Networking with other teachers and discussing ideas and concerns.

Participating in learning, professional networking, updating knowledge and targeting Stage 6 HSC Food Technology syllabus requirements with supporting current teaching resources were useful aspects of the course for me.

The communication, support and ideas shared in these professional development environments have encouraged participants to join an online social media sharing platform to continue sharing when the course is over. The community created is engaging and encouraging. The opportunity to share student work samples is also a favourable aspect and the articles, clips and information assist our teachers to stay current and relevant. Scott (2015) suggests that the collaborative learning environment challenges learners to express and defend their positions, and generate their own ideas based on reflection. Also, those learners discuss their ideas with peers; exchange different points of view; question others; seek clarification and participate in higher-order thinking, for example activities such as managing; organising; critical analysis; problem resolution and the creation of new learning and deeper understanding. If we are preparing our students for the future it makes sense that our professional development as teachers is collaborative, focused on best practice and innovation that is tried and tested.

d. Emerging technologies, future food, food science

It is understandable that this is an area where teachers are seeking guidance due to the ever-changing nature of these topics. As an evolving content area, textbooks cannot keep current, so teachers must seek reputable sources of information. NSW Education Standards Authority (2009) dictates in the Stage 6 Food Technology Syllabus that students must learn about emerging technologies in food production, manufacturing and packaging, including biotechnology in genetically modified foods. However, the truth about genetically modified foods and biotechnology, in general, is difficult to find due to its controversial nature. Participants complain that the information for these two emerging technologies often comes from overseas, America in particular, and it is often tainted by opinion and conspiracy theories.

Conner (2000, p. 2) agrees, stating although biotechnology education has gained recognition, “less is heard about how to teach effectively in areas that require sensitivities to moral, ethical and social dimensions which are linked to the use of technologies”. Simmoneaux (2000, p. 619) investigated a similar question, namely “how should the content of biotechnology information be developed for the purpose of teaching today’s students?” We asked our participants how they tackle teaching this complex subject. Some of the notable comments were:

Current examples found in ¹Australian food news.

Contact with people in the industry.

Research new technologies before teaching and then get students to research from a vetted list.

I am still struggling with this.

I research a lot and then share this information with my students.

I would like more current resources, it is hard to find resources that are new.

Read a range of case studies and explore different examples available in the food industry.

The pros and cons of each emerging technology are explored and discussed.

Use of the internet, industry magazines.

There is a lot of information about GM foods out there and kids are passionate about not interfering with nature. We look at pros and cons and try to get a balance. Linking it to prior knowledge assists.

I personally struggle with this one. I think it would be best if we had access to some current reliable information that we could share with the students.

I teach this with great difficulty and lots of YouTube videos.

It is apparent that our teachers require some guidance and assistance so that students obtain a consistent opportunity for learning such multifaceted concepts. NSW Education Standards Authority (2009) requires that students learn to investigate an emerging technology in one sector of the Australian food industry. The methods mentioned above by our survey participants—researching, sharing this research with students, and use of case studies—would assist in accomplishing this section of the syllabus. It is also required that students learn to discuss the potential risks and benefits of using emerging technologies in food production and manufacturing, which explains why participants commented about the pros and cons of discussion. Whilst many teachers have discussed viable approaches for teaching this concept, the removal of recommended reading lists and support documents from the Stage 6

Food Technology syllabus website leaves many teachers questioning their resources and the depth required to teach these topics effectively.

e. Technology Mandatory: Agriculture and Food Technologies

It makes sense that teachers are suffering from the woes of syllabus change or 'change fatigue' as it is commonly referred to. Change fatigue can be defined by its synonyms: being tired of change, adaptive failure, future shock and innovation fatigue (Dilkes, Cunningham, & Gray, 2014). For example, the Technology Mandatory syllabus has seen the joining of two subject areas, Agriculture and Food Technology, as well as the introduction of new topics not previously seen in Stage 4 Technology Mandatory, Engineering Systems and Digital Technologies. Due to begin for year 7 in 2019 and year 8 in 2020, there is plenty of adjustments to be made, and planning must occur to aid successful implementation.

Dilkes et al. (2014) support the notion of new syllabus anguish, stating that for decades, educational reform in Australia has been a quagmire of political and educational agendas. The introduction of a new syllabus increases the workload of teachers who are already feeling the pressure of increased responsibilities. Bernerth, Walker, and Harris (2011) agree that 'change fatigue' and exhaustion is, in turn, negatively related to organisational commitment and positively related to turnover intentions. In the face of frequent change, workers become less able or enthusiastic to implement successive reforms as the continual effort to do so reduces their personal resources.

The Happiness Mission® now offers courses for three of the different focus areas, Agriculture and Food Technologies, Engineering Systems, Material Technologies to assist teachers with implementation in 2019. Next year there will be a Digital Technologies course. The number of teachers who have attended these courses is staggering and significantly higher than our other courses. This is confirmation that teachers require guidance in the introduction of a new syllabus. The new concepts, particularly in the 'Learning Across the Curriculum' and 'Thinking Skills' requirements have encouraged more teachers to reach for 'outside' professional development.

NSW Education Standards Authority (2017) declare that the Technology Mandatory syllabus changes are consistent with the intent of the Melbourne Declaration on Educational Goals for Young Australians (Ministerial Council on Education, Employment, Training and Youth Affairs, 2008), which sets the direction for Australian schooling for the next 10 years. There are two broad goals. Goal 1: Australian schooling promotes equity and excellence. Goal 2: All young Australians become successful learners, confident and creative individuals and active and informed citizens. Whilst many teachers have expressed concern around the syllabus changes, the NSW Education Standards Authority (2017) claims that the new syllabus will provide students with the opportunity to investigate problems, generate ideas and produce sustainable solutions, and to develop skills and attitudes that are valued in our society and integral to Australia's economic future. There is no doubt that these changes are necessary for our students to contribute positively to society and to have similar opportunities to the other states students currently studying the Australian Curriculum.

f. Stage 5 (Years 9 and 10) Food Technology content specific (Fig. 13.2)

It displays participant responses for the question: The findings that teachers felt they had adequate resources were not surprising, due to the sheer volume of teachers who have attended our ‘Year 9 Food Tech Fun’ course and ‘Year 10 Food Technology Recharged’ course. However, there are still many teachers who feel their school is not equipped to teach Food Technology sufficiently.

The interesting elements of this response reside in the ‘other’ category. Some of the reasons that teachers selected ‘other’ were:

Being a rural school, I feel we lack access to industry, i.e. Sydney Fish Markets

We’re lacking computers, textbooks and space for practical and theory. Theory lessons are in kitchens, which makes it hard for productivity.

We have all the basics to do a good job; however, it is all very dated, and the facilities need a really good revamp.

I would like to challenge my students, complete more outdoor activities related to growing and producing food but the facilities are not available.

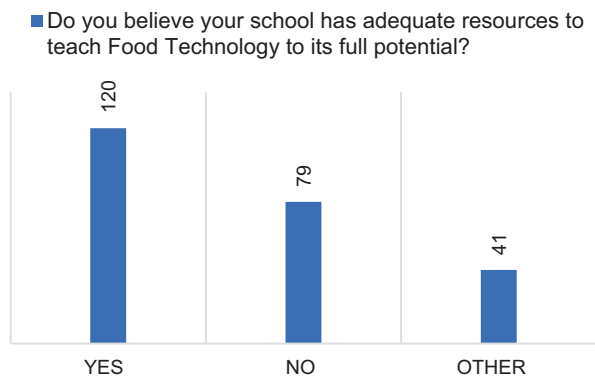
Our school has great facilities for a country school, but I feel we are slightly disadvantaged due to the limited selection of seasonal food available.

There is always a need for professional development, collegial meetings of the minds, and improving resources available to inspire students.

We often struggle to complete food trends practicals like some of the city schools as we cannot source a large range of ingredients out here.

Educational inequity in rural schools became apparent when looking at the number of schools who did not believe they had adequate resources. ACARA (2018) supports this finding, stating NAPLAN results showed that students living in very remote areas of NSW are 18 times more likely to be below the national minimum standard in mathematics by Year 7 than a student living in metropolitan NSW. Across all five achievement domains, there is a consistent pattern in the results for Australia overall. Students attending schools in metropolitan locations have the highest mean score, followed first by students from provincial locations, second by students from remote locations and third by students from very remote locations. The Melbourne Declaration on Educational Goals for Young Australians sets out to provide all students with access to high-quality schooling that is free from discrimination based on

Fig. 13.2 Saunders (2018) ‘Do you believe your school has adequate resources to teach Food Technology to its full potential?’



geographic location (Ministerial Council on Education, Employment, Training and Youth Affairs, 2008) and so it is imperative that teachers have equal access to professional development. Therefore, we ensure that we present our courses in rural locations all over NSW. For teachers in remote locations, continued teacher professional development is necessary to ensure that their teaching methods, content knowledge and acquisition of skills remain current and equal to the teachers who work in metropolitan areas.

Considering the role of a Food Technology teacher in improving student literacy we asked our teacher participants to share a strategy, teaching style or activity that they do to help improve student's food literacy, knowledge and skills. This provided rich information about the way Food Technology is taught across a wide variety of NSW schools. Here are some of the enlightening responses:

Posters on the wall to increase metalanguage.

For functional properties of food, I read out a function and students must draw a picture to represent it. They then go back and write a sentence for each.

Allowing students to describe their experiences with food and present a reflection on special occasions that involve food.

Two sentence recap, students reflect on key points in what they have just read.

Use of food media articles, games, bingo, quizzes.

I use scaffolds to help students understand the NESA key terms.

Prepare menus and food articles for a food magazine.

Food product labels; in groups students look at different product labels to identify all the characteristics of a label. Students then design a food label for a recipe we have cooked.

Leithwood, Louis, Anderson, and Wahlstrom (2004) state Professional Development that focuses on teaching strategies associated with specific curriculum content and supports teacher learning within classroom contexts. This element includes an intentional focus on discipline-specific curriculum development and pedagogies in areas such as mathematics, science or literacy. Having teachers of the same subject area all in the same room creates a shared collaboration space that doesn't end when the day is over. The community built during the professional development day often continues online and the sharing between teachers is admirable. Notwithstanding this, providing teacher professional development courses that allow teachers to share their concerns, questions and potential ideas are imperative to relieve pressure and create a sense of ease. When asked 'What helped the implementation of your learning' by NESA in the 'Provider Course Evaluations', some notable participant replies were:

Excellent presentation of resources, facility to question and discuss presentation aspects.

They provided programs, resources and interesting ways to deliver the course. We also had the opportunity to share our ideas with other teachers.

The presenter was amazing and answered all our questions and also allowed us to work together and practice implementing the material at our school.

I was enriched by attending this workshop, it made it easier for me to write a new program for Technology (Mandatory) course. I was also able to interact with teachers from other schools and joined the Food Technology teachers' group for future support and networking.

Break out activities and time spent with other teachers from my own department and from other schools throughout NSW. Group discussions were well led by course facilitators.

The appreciation of collaboration time was echoed through many of the course evaluations. Dilkes et al. (2014) found similar results in their study, stating that collaboration was highlighted for its contribution to the participants' coping strategies. By building on the seemingly natural resource of collaboration Dilkes et al. (2014) found it may be possible to help those suffering (or in danger of suffering) from burnout, change fatigue, demoralisation or other disposition problems, to become re-energised about implementing the mandated curriculum reform.

NESA is most concerned with how professional development impacts student learning. As part of the accreditation process, participants must comment on how attending the course has impacted their students. Some of the anonymous comments from the Provider Course Evaluation Report (NSW Education Standards Authority, 2018) were as follows:

'It has directly affected the way in which I have delivered the content making it more engaging for the students and therefore they are interacting with the content more'.

'Students have been fascinated with the new packages and food products I have shown them from the course. They valued the study guides, which were given to them which helped them organise and revise their notes'.

'Student engagement has increased and therefore their understanding of coursework'.

'Increased engagement of students and gaining feedback about learning immediately'.

'I have observed an increased motivation and engagement from all students but also myself. I am re-energised to teach this content. Students are excited and are talking about what they have learnt once they leave my classroom'.

After presenting over 100 courses, it is clear that teachers are willing learners who enjoy being actively engaged at a Teacher Professional Development course. Davidson, Goldberg, and Jones (2009) argue that there is a fundamental mismatch between the excitement generated by informal learning and routine learning so common to many systems of formal education. Professional development that builds on teacher's existing knowledge and experience is customised for the subject and is worthy of their time will be valued by teachers.

Conclusion

This chapter aims to examine the needs of teachers in preparing their Food Technology students for the future. If the professional development course provides quality resources that save teachers time, facilitates discussion about best practice and focuses on syllabus knowledge acquisition, it will generate positive feedback and will build on collaborative communities. This method of professional development can have an extensive impact on our students because teachers return to their classrooms with renewed energy and ideas. As a Teacher Professional Development company, we must use the feedback, comments and reviews to continually improve

the service we provide to teachers. Pearson (2018) believes that student achievement is affected by three key elements—the student, the school and the home, and by far the most significant influencing factor in schools is the quality of the teacher. Continued teacher professional development, therefore, is essential for supporting the future needs of our students.

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