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Work-Integrated Learning: A Game-Based Learning Activity That Enhances Student Employability

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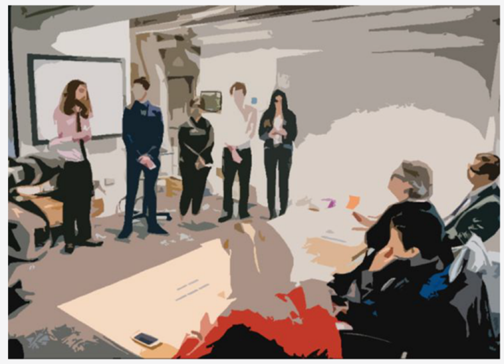
ABSTRACT: Enhancing student employability is a key aspect of any chemistry-based degree; however, embedding such activities in the curriculum is often challenging. Placements (internships in the USA) or experiential visits are the most widely used approach, but these are not always inclusive. Work-integrated learning (WIL), the practice of combining traditional academic study or formal learning with student exposure to the world-of-work, is widely seen as an alternative approach to provide key employability skills. Our study utilizes a game-based learning activity based on the TV show *The Apprentice* to conduct WIL. Working in teams, students evaluated the performance of two different chromatography analytical columns and are asked to generate various marketing materials to highlight the performance of one column over the other. This included creating an infomercial and marketing flyer before finally pitching their findings to an expert panel. This activity provided a creative platform for students to showcase a range of employability skills, which they reflected upon immediately afterward and a year after graduating. Students indicated that the real-life work-based content of this specific activity significantly enhanced their employability and helped them secure a job. This educational WIL can be modified for any discipline of chemistry, providing a unique and inclusive way to provide a vast array of skills to enhance employability.



KEYWORDS: *Analytical Chemistry, Second-Year Undergraduate, Chromatography, Collaborative/Cooperative Learning, Humor/Puzzles/Games*

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INTRODUCTION

Employability has been defined as a set of achievements that makes graduates more likely to gain employment and be successful in their chosen occupation.[1] It is increasingly evident that a discipline-specific degree alone is no longer sufficient for employers, who expect graduates to possess additional skills such as teamwork, problem solving, adaptability, and resilience.[2] Additionally, there is a perception that the role of academic qualifications has a declining role in supporting student employability when compared to experiences and credentials obtained outside the formal teaching environment.[3] Furthermore, employability is not well-understood by students who thus seldom focus on enhancing their credentials in this area.[4] Research has shown that excellent curriculum design and pedagogy require a key understanding of the employment sector, and specifically the core technical and nontechnical skills that enhance graduate employability.[5−7]

The Quality Assurance Agency also addresses the skills question in the subject benchmark statement for chemistry.[8] They expect that students are able to demonstrate chemistry-related cognitive abilities, skills in analyzing problems, and planning strategies for their solution. They also expect professional skills such as communication, time management, organization, and business awareness, as well as higher-level skills such as problem-solving and decision-making skills in complex situations. Chemistry degree programs likewise seek to ensure that graduates are equipped with employment appropriate skills, but employers, academic institutions, and the students themselves have different perceptions as to which are the most important.[9] Examples of employer perceptions of the key industry-relevant skills and the behavioral attributes that can be used to assess these skills are shown in Table 1. These skills are essential for graduates to develop to help enhance their employability.

There are varying strategies regarding how employability can be embedded into the curricula.[10] One long held option is to run specific employability-related modules,[1] which some have argued are ineffective or seen to distract students from subject development.[11] Another option is to embed employability strategies across the institution.[12] A further example is work-

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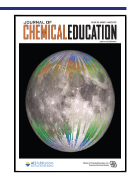

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Table 1. Examples of Key Skills for Employability and Behavioral Attributes That Can Be Used to Assess These Skills

Skills	Behavior
Communication	Verbal; nonverbal; written; listening; appropriate register of language
Critical thinking and problem solving	Identifying, defining and analyzing tasks/situations; decision-making; evaluating
Digital literacy	IT skills; appropriate social media; audio−visual; numeracy
Emotional intelligence	Self-awareness/management; awareness of others' emotions, diversity, and cultural perspectives
Innovation	Business awareness; marketing; creativity; adaptability and change management
Self-management	Time and task management; efficiency; accountability; personal, social, and professional responsibility and ethics.
Teamwork	Working in formal and informal groups; collaborating on tasks; persuading and influencing; mediating and resolving conflict

integrated learning (WIL), which is widely considered to provide clear exposure through the creation of experiential learning or placements.[13,14] More recently, degree apprenticeships within the UK have placed an onus on institutions integrating employability with teaching; however, much of the experience is provided through employment at the workplace where the apprenticeship is being conducted. Regardless of the approach taken, a holistic approach to embedding and integrating employability is considered to work best.[15]

WIL is the practice of combining traditional academic study or formal learning with student exposure to the world-of-work in their chosen profession. WIL can be delivered through a variety of educational approaches, with the goal of providing students with an authentic work experience where they can apply/test their knowledge and skills. Examples of WIL include placements, internships, field work, sandwich year degrees (a degree which involves a placement year usually after the second year of study), job shadowing, and cooperative education.[16]

The most widely observed mode of WIL utilized is to provide placements or experiential learning. However, placements are usually year-long and optional; this can lead to a lack of inclusivity, and even where available, the student learning experience may vary considerably.[17,18] Experiential visits (any form of visits to workplaces) are usually time constrained and may only be able to accommodate small groups of students making the experience less useful to learn employability skills. Others have sought to embed WIL into the curriculum, allowing students to demonstrate nontechnical and behavioral skills in particular scenarios; however, these do not provide sufficient immersive and authentic experiences of work and may only be effective for small student numbers.[10,19]

Although there are several curriculum and pedagogic practices for incorporating WIL effectively into the university setting, the most effective approach is integrating learning in the workplace with on-campus learning. This allows students to make links between their learning in different settings and better understand what is required for the effective practice of targeted skills and knowledge. Therefore, a fresh approach is needed to provide all students with an authentic experience of work on-campus, particularly when placements are not achievable for all students.[20] One such approach is gamification, the application of game style activities in nongaming contexts, such as educational activities.[21,22] Game-based educational activities are often seen as novel approaches to increase student engagement and encourage more active learning. There are various examples of computer and board games utilized as models for teaching aspects of chemistry,[23−25] but modifications of existing television game show formats are less common. *Jeopardy* and *Who Wants to Be a Millionaire?*, for example, have been used in chemistry courses.[26,27] The familiarity of such game shows' formats and rules makes it easier for students to understand what is potentially required from them in both the educational activity and assessment. Moreover, through the competitive nature of game-playing, students often find themselves taking greater responsibility for their learning.

There are few explorations of game-playing or gamification for WIL,[28] but the research has suggested that game-based elements help to develop work competencies and to address psychological needs for competence, autonomy, and relatedness and thereby increase learners' motivation in working or learning contexts.[29]

Given the success of game show formats in providing higher levels of engagement and competition, our study explored the potential of a gamification learning approach to enhance the employability skills of chemistry students. This study used the television show *The Apprentice* as inspiration for the WIL. Within this show, candidates compete in groups to complete business-related challenges and present findings to the boardroom of judges, therefore providing a good model to use for chemistry students. Within our analytical chemistry version of this television show, teams of students were given a core−shell high-performance liquid chromatography analytical column and asked to compare the performance of the column with that of a fully porous column. After a practical evaluation of the columns, teams were required to present their findings to both technical and nontechnical assessors through the development of various marketing tools.

■ METHODOLOGY

Preparing the Activity

The study aimed to explore whether the implementation of a gamification WIL activity (named The Analyst Laboratory Challenge) would develop participating students' employability skills (based on all those skills highlighted in Table 1), and thus improve their employability prospects. Second year chemistry and pharmaceutical sciences students conducted this activity as part of a second year compulsory study skills module, with the task contributing to 30% of the overall module mark. The other aspect of the module focuses on preparing and presenting a consultancy report (50% of the module mark) which is also a group-based activity conducted over half a semester and completing an individual abstract (20% of module mark). The learning outcomes of all aspects of the module including the WIL activity were mentioned within the module handbook and provided in a lecture when the activity commenced. The study was conducted over a four year period (2013−2017) in which 109 students completed the module. Prior to commencing this activity, students had completed a course on chromatographic techniques in the first semester in a core analytical chemistry model, where they learned about the theory and application of HPLC, as well as gained knowledge on the interpretation and analysis of chromatographic data. The Analyst Laboratory Challenge ran

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in an intensive mode for a week, where students did not have any other academic commitments other than to complete the activities of this task. The week was designed as follows:

- Day 1, students were randomly allocated to a group of 5−6 and introduced to the task;
- Day 2, laboratories were available for students to generate experimental data;
- Days 3−4, students worked on written and video assessments;
- Day 5, students pitched to a technical and nontechnical panel.

The instructors were responsible for providing all of the briefings and education on activities to be conducted on the task and for conducting the assessment of the marketing materials. To drive independent learning, the instructors were only accessible for 1 h each day for any questions or clarifications regarding the activity.

The students who undertook the analytical laboratory challenge were surveyed one year postgraduation through social media platforms and via the alumni service to evaluate the impact the activity may have had on their employability. The survey was approved by the University of Brighton Ethics Committee.

Scenario of the Analytical Laboratory Challenge

The activity was based on the television show *The Apprentice* in which contestants work on business or marketing activities to showcase their individual and team performance before pitching results to the boardroom. On day 1, all students were randomly placed into teams of 5−6 and were introduced to the activity. This was conducted so each group could establish teamwork skills by learning each other's strengths and weaknesses and how to work with these effectively. An activity focused on learning the groups' personality traits was conducted on the first briefing so they could learn about the importance of team dynamics and how to effectively work as a team. This briefing included the task scenario, detailed instructions, guidance on how best to complete the activities using their team members, as well as access to the resources needed to complete the activities, which included some pilot data from the analytical HPLC column and a URL link to an example of an infomercial on chromatography focused on guard columns.

In the task scenario, the students were introduced to the global business of separation sciences, and high-performance liquid chromatography columns (HPLCs) in particular. They were also informed of the necessary research and development for generating new HPLCs and informed that these have a large market share. Each team was required to work as its own distribution company in the separation science sector, evaluate the performance of a new core−shell HPLC column, and give a statement as to why they were best suited to promote/sell this column on behalf of the column manufacturer.

The students had to create a company name and logo for their team's distribution company as well as their own product name and logo for the new HPLC column. For the task itself, students were told they would need to evaluate the new HPLC column against the current gold standard column, present their findings in a marketing flyer and infomercial (technical information-based video commercial), and deliver an oral presentational pitch on day 5.

While traditionally groups of 2−3 are used for chemistry lab classes, this activity had larger groups of 5−6; as there were multiple tasks that needed completion on similar time scales, we were keen to understand how students would effectively manage a team that was required to collect and analyze experimental data and present this in three different mediums of communication, which were completely new to the students, within a period of 3 days. Students were all required to interpret the chromatograms to generate performance parameters, which in turn could be used for the generation of marketing materials. Given that students had little exposure to the generation of videos or how to deliver a concise picture, much effort in team management and preparation was needed. All members of the group conducted analysis of the chromatograms, and the instructors made clear that tasks should be divided among the team when generating the marketing materials, taking advantage of individuals' strengths, as well as ensuring that everyone would be involved in the pitch. Students were asked to complete video diaries to highlight who participated in which activities and allowed for self-evaluation of the autonomy of group working.

Evaluation of High-Performance Liquid Chromatography Columns

Chromatograms for flow rates of 0.5, 1, and 1.5 mL/min were also provided for the two different columns, but groups were given a full day (day 2) to obtain any additional data, where only the flow rate could be altered.

The columns utilized in the activity were a fully porous C18 100 mm × 4.6 mm i.d. 5 μm column (gold standard column) and a Kinetix core−shell C18 100 mm × 4.6 mm i.d. 5 μm column (new column). Both columns were evaluated by using a test mixture of uracil, acetophenone, benzene, and naphthalene, where the mobile phase utilized was 60% methanol/40% water.

All students were required to complete manual analysis of the chromatograms to generate key performance parameters (number of theoretical plates, separation factor, tailing factor and resolution, Van Deemter plots). Students needed to use the results they obtained to highlight the column, which was a key element of the assessment, and they were aware that they would be penalized for using generic marketing information present in the public domain. This was a critical aspect to ensure students were not merely using existing data from chromatographic column manufacturers to present their findings.

Requirements of the Marketing Materials

Each group was required to create logos as well as develop a marketing flyer and an infomercial. To assist them, a lecture was delivered on work-based presentation skills as well as necessary marketing aspects, such as context branding and color, appropriate register of language, and the use of storyboarding to generate the infomercial and other formats of communication.

Teams were required to produce their own flyers with product branding and key performance information utilizing the experimental data generated. The flyers were required to be visually interesting and avoid too much technical content, as they were targeting a wider sales audience. As such, the flyers were assessed on content, branding, clarity, and creative presentation.

While the infomercial also had to be visually interesting, teams were informed that it should provide in-depth knowledge rather than surface information and be between 1 and 3 min in length. The students were provided with a

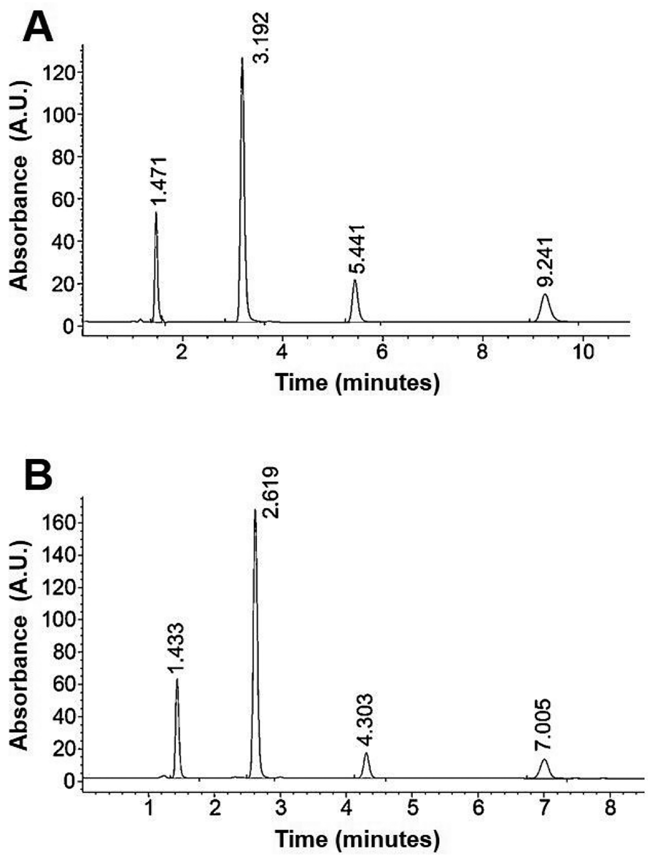

Figure 1. Chromatographic responses from the (A) fully porous column and (B) core–shell column. In both cases, the column dimensions were 100 mm × 4.6 mm i.d. with 5 μm particles. Mobile phase was 60% methanol/40% water. Retention order of the analytes from elution is uracil, acetophenone, benzene, and toluene.

resource sheet highlighting software that could be used to generate and edit the infomercial but were told that the video did not need to be of professional quality and could be made using their phones or a digital camera. Teams were asked to ensure that the infomercial contained the following: key information explaining the meaning of core–shell technology; why this technology for column manufacturing was better than current gold standard fully porous columns; and, finally, key performance information from the experimental data generated. The infomercial was assessed for background information on core–shell technology, scientific context, presentation, and discussion of key results within the chromatograms. Examples of marking schemes are provided in Supporting Information.

Pitching the Product

Teams were each given a time on the afternoon of day 5 to deliver their pitch to a boardroom panel of at least 3 people, representing technical and marketing roles and business and development managers, and students were told that some of the members of the boardroom would be representatives from the separation sciences industry. The remit was to demonstrate how the product works and how they would keep the product brand alive. Teams had to include and were assessed on

(i) details regarding their marketing brand concept;
(ii) the performance benefits of the new column that will be attractive to the consumer;
(iii) the commercial markets they would target, and why;
(iv) how they would additionally support the product; and
(v) a closing statement as to why their team should win.

Pitches were mostly delivered by PowerPoint slides and included participation from all team members. The pitch itself was restricted to a maximum of 10 min (excluding the infomercial), and if students exceeded the allocated time, they were deducted 10% of the grade. Following each pitch, students were subjected to 20 min of questioning on all aspects of the task. All pitches were filmed, and while students were asked during their marketing and communication lecture on day 1 to dress professionally, i.e., as if giving a job interview or a real business pitch to a leading chemical company, this was not obligatory. The filming was then utilized to give feedback to each group on their performance, which provided a key reflection on how future presentations could be improved.

Postactivity Survey

Given that the focus of this study was to see (a) whether the students gained and showcased new skills that would be important in work-related environments and (b) if the activity itself supported student employability, we waited one year following graduation of each of the 4 cohorts to survey the students, using contact details provided by the alumni and via an alumni LinkedIn site. Survey questions focused on skills gained by undertaking this activity and whether it had enhanced student employability.

■ RESULTS AND DISCUSSION

Chromatographic Data

Figure 1 shows examples of the chromatograms obtained from the fully porous columns and the core–shell column at a 1 mL/min flow rate. As expected, due to the nature of the core–shell particle, the retention times, number of theoretical plates, resolution, and tailing factor were better on this column than on the fully porous column. Students were given chromatograms at three different flow rates (0.5, 1, and 1.5 mL/min) and were given the ability to generate more data. Within the laboratory session, students ran additional flow rates to obtain retention times of the analytes to generate a Van Deemter plot to show a comparison between the two columns.

On the basis of the data provided, plus any they generated themselves, the students needed to manually analyze the chromatogram to obtain performance parameters (number of theoretical plates, separation factor, tailing factor, and resolution). This allowed them to use their data to highlight differences in the performance of the column for their marketing materials. This is a key element of the activity as all members of the group were required to analyze and interpret data before generating the requisite marketing materials.

Development of Marketing Presentation Tools

Table 2 shows examples of some of the logos that the students generated to brand their company and product. These highlight their ability to think creatively in marketing the analytical column. The design of appropriate product and team logos to align with the company's branding concept was key to this task. The Supporting Information video showcases an example of an infomercial, in which students created a unique amination that provided information on the principles of core–shell technology and technical information on the performance of the specific column. These infomercials were designed for trade fairs and, therefore, needed to appeal to a

Table 2. Examples of Logos Generated by the Students for Naming Their Company and Product

Adlex Sharp vision for the future	Phenolumn
Discidium Separation at its Finest	Sierra CS 50
In[cite] Making Connections Worldwide	Chronos
Brighton Scientific	IdentiPhase
Vector Straight Forward Analysis	GTEX
IDEM THE KEY TO SEPARATION	kore

broader audience than the posters. The marketing materials highlight how the students embraced the challenges of presenting technical scientific information in a creative fashion. This was highlighted in many of the student video diaries. Therefore, this task provided new skills which students could use as evidence to enhance their employability. Students were able to provide a rationale for the choice of marketing logos and branding, including the use/impact of color for their branding. These additionally showed their ability to explore a new aspect of marketing skills outside their core focus on technical scientific knowledge.

As instructors, we found that the students had really learned and adopted much of the knowledge on branding and thus provided excellent rationale for color schemes and designs of their products. Given that creativity in scientific presentation is seldom explored in the delivery of analytical chemistry, this activity showcases the potential for students to utilize knowledge of other communication mediums to best showcase analytical results.

Communication Skills

Figure 2 shows the effect felt by students on their participation in the WIL related to their communication skills. Students felt that they learned a range of different communication skills while conducting the WIL activity. From the survey, 88% of students felt that oral communication had improved, with 86% indicating improvement in presentation, 81% on video editing, 74% on nonscientific communication, and 64% on written communication. The biggest change from learned to improved occurred for nonscientific communication and video editing, as these aspects were covered for the first time. Given the strong narrative in the activity on communication and presentation skills, these high responses are expected. The most important element of the task is the pitch presentation. Students felt that having to present technical and nontechnical information in a concise fashion within the pitch had the biggest impact on their communication skills and was the most challenging. However, this may be due to the nature of limited experience in this format of presentation. The finding that communication skills were improved as a result of the WIL is similar to other employability activities, namely, those where placements are utilized.[13,16] This educational activity focuses on communication using nontraditional modes of assessment such as the infomercial or marketing flyer. In most chemistry degrees, these formats of communication tasks are not conventionally utilized, whereas consultation reports, oral or poster presentations, and oral examinations (vivas) are more widely adopted.[30−32] Therefore, these additional formats provide new exposure to different ways of communicating chemistry and further enhance the students' employability.

Transferable Skills

This activity also focuses on important transferable skills, and students indicated which ones they felt they learned or they felt were most improved following participation (Figure 2). Students felt that the activity provided them with an opportunity to learn an array of transferable skills. Time management had the highest improvement score at 86%, followed by teamwork at 84%, and then creativity and data interpretation at 68% and 62%, respectively. The biggest change from learned to improved occurred for marketing skills, as all other aspects of skills are covered in other assessments prior to this activity. Time management is usually assessed within a single assessment and often reflects the student's

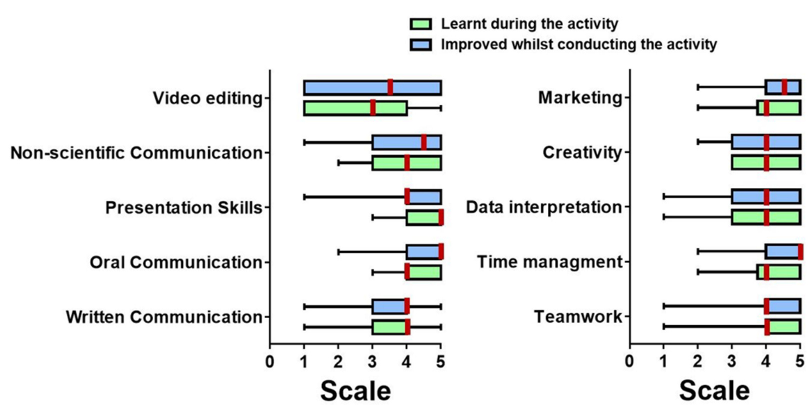

Figure 2. Student perception regarding which skills were learned while conducting the activity and improved while conducting the Analyst Laboratory Challenge. Data shown as a Likert scale, where 1 indicates not learned/improved and 5 indicated significantly learned/improved. Data shown as maximum−minimum box and whisker plots, where the red line indicates the median. n = 50.

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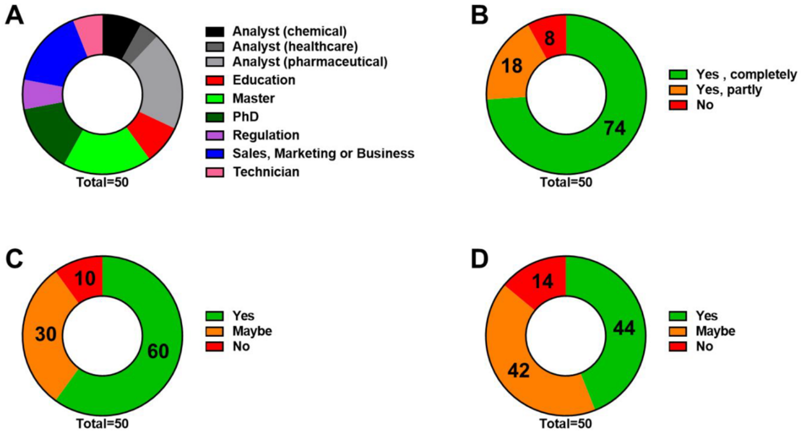

Figure 3. Influence of the game-playing WIL on employability. (A) Current careers that graduates who undertook the activity are currently working in. (B) Indication if they felt that the activity was a realistic example of a work-related activity based on their experience of being in the workforce. (C) Perception of students regarding if the game-playing WIL had an impact on their employability. (D) Perception regarding if they felt that, by conducting the game-playing WIL, they would be able to use this to help them secure a job.

ability to handle the rigors of assessment from multiple modules. While students are used to managing their time for short periods in this manner, few of them have experience of sustaining this over a week. Conducting the task over 1 week therefore makes this a realistic and timely WIL experience; it delivers a clear model of an on-campus activity with a real relationship to work, which is essential to ensure WIL is effective for placements. As team members could not be involved in all activities, planning the activity was essential, and students clearly understood that time management skills were critical to hit the various deadlines. They also felt that the lessons learned here could be applied to future activities. Furthermore, students were aware that they needed to deliver, whatever the group dynamic. As with all group-based learning activities, this was challenging, but the short duration given to complete the activities added another level of difficulty. Strategic working in teams has been highlighted as a key skill required for students to bridge the gap between university and industry.[33] The only skill that did not noticeably improve during this activity was data interpretation, but this is to be expected given that much of the assessment in the chemistry degree is already focused on data analysis and interpretation.

Employability

Over the duration of the study, 109 students conducted the activity; one year following graduation, only 91 were contactable. Of these, 50 students responded to the survey (response rate of 55% for those students who were contactable). With respect to year of graduation, there were 12 responders from 2014 (total 28, 43%), 12 responders from 2015 (total 21, 57%), 11 responders from 2016 (total 25, 44%), and 15 responders from 2017 (total 35, 43%). None of the students who responded were unemployed. However, graduate destinations are obtained for the entire cohort by the institution's careers service, where, over the study period, 5.4% of the students were unemployed within six months of graduation.

Figure 3A shows the areas in which the students who responded to the survey are currently employed: 32% as analytical chemists in different sectors; 40% in further education or trained as teachers; 6% in careers associated with regulatory affairs; 16% in sales, marketing, and business; and, finally, 6% working as technicians. Students often considered this WIL activity as a key aspect to include within their application materials for employment. Of those within sales, marketing, and business, most of them felt this activity was a key example to enhance their employability during an interview.

One of the most important aspects of the WIL activity was to understand if our on-campus activity was a realistic scenario that reflected a real working environment. Figure 3B shows that 74% of respondents (n = 50) felt that all aspects of the activity were reflective of what occurs in the working environment and 18% of respondents (n = 50) felt some of the activity was reflective of the working environment. These findings from students reflecting on the WIL activity following employment strongly indicate that our on-campus activity is an excellent model of a work-related activity and therefore challenges students as if they were in a working environment.

As many of the elements of the game-based WIL are important to the careers that the students are undertaking, we asked if this activity had an impact in boosting their employability (Figure 3C) and supporting their application for a job (Figure 3D). Our survey indicated that 60% of responding students (n = 50) felt that this activity enhanced their employability. Most responders who felt this had a significant impact on their employability were working in business, marketing, and sales; regulatory fields; and pharmaceutical analysis. Figure 3D shows that 44% of respondents (n = 50) felt that this activity was key in supporting their application for a job. Once again, these were responders, who were currently working in business, marketing, and sales; regulatory fields; and pharmaceutical analysis

From the survey, 10% of responders did not feel this activity enhanced their employability, and 14% of responders felt that this activity was not key in supporting their job applications. These responses were mainly received from responders who were in further postgraduate education or technical jobs, where they felt the more practical elements of their degree course were more important than the soft skills covered in the WIL activity.

These findings strongly indicate that the game-playing WIL can have an impact on supporting student employability, especially when industry is involved in the activity. This was supported by student comments; Table 3 indicates the perceived strengths of the educational activity, in which 12

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Table 3. Perceived Strengths of the Game-Playing WIL Activity

Comments Mentioned	Count
This is a novel educational activity that resembles a real-life working scenario.	22
This activity provides exposure to important skills not usually covered in the course such as time management and nonscientific communication.	17
This activity was important to enhancing my employability or preparation at a job.	12
This activity was often the activity that employers mentioned in interviews.	7
This activity exposed me to the challenges of teamwork in short time frames.	6

responding students felt this enhanced employability and preparation for job interview and 7 responding students felt this was the core focus of interviews. Examples of these were based on the following student quotes:

> *"I used to explain this task in interviews and it really impressed the employers. I think it must have helped as speaking to others they think it's seriously novel."*
>
> *"Really useful activity that helped me provide evidence for job applications due to the range of skills we conducted. When I had interviews it was something I was asked about and often the employers were impressed on what we had to do."*
>
> *"This provides real-life awareness of the job market. Made me more ready for interviews and as I did not want to stay in chemistry, and it gave me more awareness of what I could do with my career. I was able to use this as a great example of my awareness of business and presentation."*

Additionally, students also highlighted that the WIL provided important skills that were not present within the course such as time management and nonscientific communication as well as many others that are core to those required for employability as highlighted in Table 1.

CONCLUSIONS

Our study has focused on the development of a game-based WIL activity that can be conducted on-campus and has the ability for students to develop and showcase an array of important skills that can enhance their employability. This activity focused on the evaluation and promotion of a new chromatographic column using a range of different marketing mediums. This activity provides the ability to students to showcase a wide range of skills that are often difficult to cover in a chemistry degree program, such as nonscientific communication, video making, and marketing skills. Overall, this activity scored positively in terms of enhancing employability and, on occasion, was the focus of job interviews. It demonstrates that students can acquire work-related skills through game-based WIL activities on-campus and that this approach can be an important part of the employability toolkit.

ASSOCIATED CONTENT

Supporting Information

The Supporting Information is available at https://pubs.acs.org/doi/10.1021/acs.jchemed.0c00919.

Example of infomercial (MP4)
Marking scheme for marketing flyer and infomercial (PDF, DOCX)
Marking scheme for oral pitch (PDF, DOCX)

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Notes

The authors declare no competing financial interest.

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