Role-Playing: A Smorgasbord of Learning Types

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ABSTRACT

One tertiary institution sought to research the perceptions that tertiary students have of role-plays as a means of learning. Role-plays were used across a range of disciplines at that institution including: teacher training, business and chemistry. Each of these disciplines used a role-play in their classes and then collected opinions from the students on the usefulness of the activity. It was discovered that students value role-plays as a means to challenge preconceived ideas, encourage creative thinking, assist students in applying theory to practice, make lessons fun and provide active learning experiences that increase student learning and engagement.

Keywords: role-plays, constructivist, collaborative learning, interdisciplinary, active learning

INTRODUCTION

Role-plays as learning experiences in tertiary settings can be categorised into several learning types. They certainly constitute active learning, and many types of role-plays have elements of problem-based learning, enquiry-based learning and in most cases include collaborative learning.

As students will derive their own meaning from the role-play activities they engage in, constructivist learning is also occurring. As reported by Kilgour, Reynaud, Northcote and Shields (2015), "By engaging in role-play activities, higher education students are provided with opportunities to view situations from multiple perspectives, in the spirit of constructivist learning theories" (p. 19).

This paper reports on role-play activities across disciplines in a single institution where staff from science education, business education and teacher education have come together and acknowledged that using role-plays is an effective learning and teaching technique in their very diverse areas. The paper seeks to analyse the four examples of role-plays being reported and answer questions relating to student attitudes towards them including their perceived practicality and benefits.

METHODOLOGY

In this paper the experiences with role-plays of four academic staff in vastly different academic areas are presented. They represent four distinct cases brought together by common outcomes and common questions asked of the processes. Looking at the four cases in this light and asking questions of what they have in common across such a diverse range of disciplines brings us to a case study methodology. This technique does more than just tell a story. It links the stories by delving into how and why each case is presented in the way it is (Yin, 2003). As stated by Baxter and Jack (2008), ". …qualitative case studies

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afford researchers opportunities to explore or describe a phenomenon in context using a variety of data sources" (p. 544).

The focus of this investigation is the effectiveness of the use of role-plays as a teaching technique across multiple academic disciplines. To achieve this purpose qualitative data were collected from students for each of the individual cases being considered. Among other questions, students were asked about their feelings after participating in or observing role-plays and the benefits they perceived were gleaned from the activity.

While individual results and discussions are provided for each example, common themes have been extracted and are provided in the discussion section.

Role-playing and classroom management

Research has consistently indicated that while effective classroom management is essential to success in the classroom (Zuckerman, 2007), new teachers generally feel unprepared in the development of these skills (Allen, 2012). Initial teacher education is seen as playing a key role in the development of these management skills (O'Neill & Stephenson, 2012). A recent study however found that Australian pre-service teachers felt confident in the use of only half the strategies they had become familiar with during their course (O'Neill & Stephenson, 2012). This was particularly evident when confronted with the more challenging and aggressive forms of student behaviour.

For many years, role-play has been recognised as a valuable tool in developing effective classroom management (Jones & Eimers, 1975; Slider, Noell & Williams, 2006) and has been shown to enhance both the engagement and core understanding of pre-service teachers (Niemeyer, Johnson, & Monroe, 2014). Within the current context, the objective was to measure the perceived value of using role-play to enhance classroom management skills with a group of second year pre-service teachers.

Two very different strategies were selected for use within the role-plays. The first was a conversation reflective of Glasser's 10 step approach in dealing with misbehaviour (Lewis, 1997). This had the purpose of assisting the student in recognising their misbehaviour and in helping to formulate an agreed plan for change. The second strategy involved a more teacher orientated approach by responding with an increasing hierarchy of consequences (Lewis, 2009) yet requiring the teacher to remain calm and in the adult state (Lewis, 2008).

After dividing students into small groups, a set of behavioural scenarios was displayed. For the first role-play nothing was said to the students about performing to an audience larger than their small group. For the second set of role-plays however, it was stated in advance that some groups would be selected to perform in front of the class.

Role-playing in pre-service teacher preparation

Teachers who replicate the practices of those that preceded them, without first developing an understanding for themselves, will be ineffective in the ever-changing environment that is education. For pre-service teachers to successfully develop into people capable of explaining their classroom practices in light of who they are and what they have experienced, they must first be provided with experiences that allow them to test the theories of others (Franco, 2014). For this reason, 50 secondary education students in a third year pedagogy subject were involved in ten challenges that required them to take part in a variety of role-plays.

These role-plays were designed to provide each of the learners with the opportunity to make sense out of a range of theoretical concepts presented to them in lectures, by applying them to real life scenarios.

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Over the course of the subject pre-service teachers were required to plan for and to play the role of: a journalist reporting on the generational divide; a counselor providing advice in relation to personality types; a motivational speaker explaining how to engage young people; a playwright delivering a play on conflict management, and an educational expert delivering professional development focused on integrating cooperative learning, problem based learning, and multiple intelligences in the classroom.

To determine the effectiveness of the role-plays an open-ended survey was administered to all the students that were present during the final class of the semester. The survey asked questions in relation to: the relevance of the role-plays; the learning outcomes achieved; the strengths and weaknesses of the activities, and in addition provided opportunity for students to detail any general comments.

Role-playing in business education

Potential employers of business graduates (especially accounting graduates) typically expect their new employees to be 'work ready' upon graduation (Kavanagh, Hancock, Segal, Howieson, & Kent, 2010, p. 21). However this is not always 'realistically deliverable' (Cappellatto, 2010, p. 24) in the context of an already crowded curriculum (Hancock et al., 2009, p. 48). In order to give students in the Bachelor of Business degree an opportunity to experience and participate in a simulated business environment, an elective subject has been made available for selection by students who have completed a substantial component of their program.

The role-play incorporated within this subject is a commercially available computer-based business simulation in which there are six teams (companies) all operating and competing against each other in a closed market environment over eight rounds (years). Students are assigned to one of six companies each comprising three to four participants drawn from a mix of accounting, human resource management (HRM) and marketing majors. Where there are insufficient students for all six companies the remaining companies function as computer-based.

Each team starts on an equal footing at the beginning of the simulation, with equal market share, finances and production capacity. From then on the teams are required to input decisions each year for the various components of their company based on the broad areas of research and development (R&D), finance, human resource management, marketing and production. There are well over 60 decisions to be made in the first year and these increase as the complexity of the simulation grows over the eight years.

Once these decisions have been processed, a new year begins with each company now facing the consequences of their decisions and of their competitors. Market share, profits, stock prices, cash flows and a host of other business indicators all tell the tale of the position of each company within the simulation, and it is up to the teams to respond and manage their company.

The course begins with a series of individual tutorials and rehearsals to give the students an understanding of the simulation. Once assigned to their teams, there are three weeks of practice rounds before the competition begins and the teams subsequently process one round each week. During the semester students also have to submit a weekly reflective journal, minutes of their company meetings, undertake two competitor analyses (after rounds two and six), prepare two company reports (after rounds four and eight) and host an annual general meeting of shareholders (comprised of Faculty and College administration) in the last week. There is also a portion of the overall grade based on the performance of the company, derived from success factors chosen by the teams.

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Role-playing in chemistry education

Scientific controversies have been shown to possess the ingredients that can lead to captivating dramas or role-plays in science education and public contexts (Begoray & Stinner, 2005). In the 18th century a significant controversy arose between Antoine Lavoisier and Joseph Priestley as to what happens when a metal is heated in air (de Berg, 2014). Basically Priestley believed that the metal lost something to the air and Lavoisier believed the metal gained something from the air.

The first-year chemistry class within the current study had previously completed a laboratory session on the chemistry of copper. In that session the students had performed the prescribed experiments with copper and its compounds using traditional methodology. They would however not have realized how controversial copper chemistry was towards the end of the 18th century. As part of a revision of copper chemistry it was decided towards the end of the semester to role-play the copper controversy. The role-play script, lasting 15 to 20 minutes, was written by the lecturer and performed by the lecturer and a third-year science education student training to be a secondary school science teacher.

Seven of the eight first-year chemistry students witnessed the role-play and were presented with the following introduction before the action commenced.

> "The Role-Play is set in a Parisienne Café where natural philosophers often meet to discuss current issues of interest to them. On this occasion Professor Pierre Poirot from the French Academy of Sciences is meeting with Professor Paulo Romeo from Verona in Italy, a visitor to France to meet with Antoine Lavoisier to observe some of his latest experiments. Pierre and Paulo have been friends for 10 years and are pleased to be catching up again on this occasion. Both have shown an interest in Lavoisier's experiments on the heating of metals in air. This meeting takes place in August 1787."

The lecturer played the part of Professor Poirot and the third-year student the part of Professor Romeo. These are fictional characters but the discussion is modeled after the actual controversy. Both characters had met with Dr Priestley on a previous occasion and how sensible his ideas appear to be.

> Pierre: Well, what I find interesting is how two well accomplished natural philosophers like Priestley and Lavoisier, both interested in what happens when you heat a metal in air, come to completely different conclusions about the matter.
>
> Paulo: I have been thinking about this myself you know. I understand that Priestley believes that a metal loses something to the air when heated but Lavoisier believes that a metal gains something from the air when heated. I must say that Priestley's view seems more logical to me because what is there in the air that a metal could gain?

The different colours that copper goes when heated are discussed as follows.

> Paulo: What did the copper look like when you heated it?
>
> Pierre: I first held the copper high in the flame and it turned a reddish brown colour such as this. (Pierre shows Paulo as sample).
>
> Paulo: That might have just been the colour of cinged copper of course.
>
> Pierre: Yes I know. But Lavoisier believes it is an oxyd (pronounced oxide in some parts of the world) obtained by the metal combining with that part of air that supports a burning candle.
>
> Paulo: What happened when you heated the copper more strongly though?
>
> Pierre: You wouldn't believe it but it turned as black as Satan. Here is a sample.
>
> Paulo: It looks to me like soot from the flame.

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This dialogue is designed to show how an observation can have different interpretations. Other aspects of the dialogue refer to the part played by Lavoisier's wife and the personal concern she had expressed for his safety given the political situation in France.

At the conclusion of the role-play students were asked to complete a survey, which contained four multiple-choice questions and a short-answer question. The first three multiple-choice questions related to the chemistry of copper and the fourth related to the students' reaction to the role-play. The short answer question asked: What did you learn from the role-play that you had not known before?

The survey revised some chemistry content that was presented in the earlier laboratory session but also was designed to introduce students to some aspects of the nature of science, which usually do not feature in traditional courses.

RESULTS AND DISCUSSION

Role-playing and classroom management

There was a wide range of reactions from students when the role-plays were introduced, though mostly positive. Twenty-three students were involved and provided feedback on their experience as displayed in Table 1.

Table 1. *I enjoyed being involved in the classroom management role-plays.*

	Frequency	Percent
Strongly Disagree	-	-
Disagree	1	4.3
Partially Disagree	-	-
Partially Agree	7	30.5
Agree	11	47.8
Strongly Agree	4	17.4
Total	23	100.0

When asked to rate their perception as to how valuable a learning activity the role-plays were, most were positive about the experience (see Table 2).

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Table 2. *The classroom management role-plays assisted my learning in this area.*

	Frequency	Percent
Strongly Disagree	-	-
Disagree	1	4.3
Partially Disagree	-	-
Partially Agree	6	26.2
Agree	9	39.1
Strongly Agree	7	30.4
Total	23	100.0

In addition to these two Likert type responses, students were asked for further comments about their involvement in the role-plays. Table 3 summarises these qualitative comments.

Three clear themes emerged from the data. Firstly, students found that the role-plays challenged their ideas and required them to analyse the approaches more carefully than if the lecturer was simply presenting. This in itself provided an unexpected challenge in that some students found it difficult to adopt a particular strategy if the approach appeared to be at odds with their personal belief system regarding classroom management. This confronting of personal perspectives, though uncomfortable at times, could be argued as a positive outcome. Two students commented that it was not until they actually took on the part and began implementing the strategy that they truly began to understand how it looks and feels in practice.

The second clear theme to emerge was the benefit of being actively engaged in the learning process. Students felt this interactive approach maximised their interest and motivated them to think more deeply than they otherwise would. One student commented that they would be far more likely to remember the concepts because “we actually had to think about what we were doing”. The positive benefits of active learning at under-graduate level have been well established (for example: Braxton, Milem, & Anna Shaw, 2000; Cherney, 2008; Prince, 2004).

Thirdly, while the thought of presenting to the whole class provided an addition level of anxiety for some, it also appeared valuable in encouraging students to prepare the role-plays carefully and to maintain consistent focus within groups. In looking to the future, it will be important to scaffold the introduction of role-plays to ensure students feel as comfortable as possible. Initially presenting in small groups and actively building a culture of encouragement and support within the class may prove the key in maximising the benefit of this type of activity. It is perhaps not surprising that a strong correlation was shown to exist between the students’ enjoyment of the activity and of their perception of personal benefit from the activity [r= 0.77, n=23, p=0.00]. This highlights the importance of ensuring that students are comfortable with the role-play process.

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Table 3. *Examples of Qualitative Comments from Students*

Theme	Student Comments
Small group vs whole class presentation	I like role-play in small groups though a bit awkward doing it in front of the class.
	When you know you might have to present something to the rest of the class it's more stressful.
	You tend to focus more and get organised quicker if you know you might have to present to the class!
Perceived benefits	Role-plays are an awesome way to help solidify my ideas about classroom management.
	It engages the class and gets them to think in a different way, while still being fun.
	They motivated me to be engaged in my learning and helped me understand classroom management strategies in a clear way.
Provisos	Some people are quiet natured so this is out of their comfort zone, but at the same time beneficial.
	Students acted how they would act in accordance with their personal beliefs rather than acting out the required model.
	I felt the role-plays were good, however not so realistic in the way we role played children.

Role-playing in pre-service teacher preparation

A total of 50 secondary pre-service teachers (26 female and 24 male) volunteered to complete the open-ended survey. Each of the surveys were analysed post experience to determine the effectiveness of the role-plays employed in relation to the learning outcomes achieved from the perspective of the students who completed the course. Three thematic categories emerged as shown in the table below.

Involving secondary pre-service teachers in role-plays provided them with an appropriate experience to experiment and reflect on foreign concepts in a safe learning environment. The students seemed far more likely to incorporate new concepts presented to them in lectures when they were first provided with an opportunity to pilot it using a role-play. While implementing the theories in an actual experience seemed to support the individual's own understanding, the pre-service teachers also highlighted the value of learning from their peers. Pre-service teachers appeared to learn as much, if not more, from their peers attempts to connect theory to practice, as they did from their own attempts or from the attempts of the lecturer. As a result of being pushed beyond their comfort zone, and from the connections formed between theory and practice, the pre-service teachers appeared to grow in confidence in relation to public speaking, working with others, and feeling more like a teacher.

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Table 4. *Examples of Qualitative Comments from Students*

Theme	Student Comments
Promoted experimentation & reflection	Being able to try something new and make mistakes before going out on prac was something I really valued.
	I learnt as much watching my peers complete their challenges as I did from the lectures.
	The activities allowed me to reflect on the theories, and also on my own experiences as a teacher.
Linked theory to practice	The lectures all related to the activities which gave me the opportunity to figure out how I could actually implement the theory appropriate to my subject area and who I want to be in the classroom.
	I always felt more confident about the theories once I'd had the chance to put them into practice."
	I learn so much better by doing rather than listening.
Developed teacher confidence	I was continually pushed out of my comfort zone and became more comfortable being in front of a group of people.
	The challenges required me to act out scenarios I am likely to face as a teacher and as a result I now have a stronger professional identity.
	It made me believe that I had the potential to be a great teacher one day.
Suggestions	Repeat the role-plays so we get a change to reflect more and make changes.
	Working with random group members helped with building skills to work with others.
	Consider how to better cater for assessment rigor to raise accountability.
	Provide exemplars.
	Base every challenge on specific teaching fields.

As part of the evaluative process the pre-service teachers reflected on their recommendations in relation to improving the course for the next cohort of students. Their feedback highlighted the overall value of the course and praised the close ties that were maintained between the lecture content and the role-play scenarios. Working with different class members each week was also affirmed as they found it resulted in higher levels of social competence than if that had been allowed to choose their own groups. The strongest recommendation focused on the limitations of using peer marking. While the learners were provided with clear marking rubrics, at times they found that peer marking resulted in lower levels of accountability and an uneven distribution of marks that were not always representative of the quality of work achieved. The pre-service teachers also suggested that the role-plays could be linked more

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closely to the students' chosen teaching areas to further increase the relevance of the task and that wherever possible demonstrations could be provided to better explain the standard of work required.

Role-playing in business education

Each semester a student survey of experience with the subject was conducted inviting students to provide written responses, which this study uses, as well as observations of the lecturer. The most significant outcomes were an improved learning experience providing opportunity to achieve the learning outcomes, and development of student's knowledge and skills.

To improve learning experiences linkages with outcomes, assessments were designed to simulate situations giving tangible results. For example, a learning outcome "Craft business strategy" was achieved by each team considering the direction of their company, what market segments to operate in, products to develop/discontinue, etc. Consequently, students could see that through their experience, this learning outcome was evident and achieved. Other learning outcomes were similarly recognised and achieved by students seeing consequences of decisions and facing the challenges of running a business. Comments from students noted the subject, "…culminated in something concrete", "showed how much I know? And "gave an understanding of the role of management".

Students' knowledge and skills developed through applying the learning from earlier subjects into one consolidated subject drawing on elements from each. The complexity of the decision making process, required students to consider wide-ranging consequences of decisions. For example, twice students are required to individually prepare an analysis of a competitor. When combined, these reports provide valuable information on each of the competitors. At semester end the subject culminates with students running an annual general meeting based on the actual results of their company, providing experience in running board meetings and facing potentially hostile groups of "shareholders". Student feedback on this is typified by comments like, "…it's not just theory", "…it helped with critical thinking", and "It was real life!" The learning impact was typically described as "engaging and practical".

The lecturer noted that students' personal development also grew through the subject. As it progressed students were observed readily identifying with their respective company roles (Finance Manager, Marketing Director, HRM Manager, etc.) and adopting the titles and responsibilities accordingly. By simulation end students approach to assessments and tasks demonstrated increased professionalism, evidenced by more "business-like" dress standards, improved punctuality, and more robust decision-making discussions.

The simulation and associated assessments allowed business students to actually experience running a company in a competitive environment, and to experience the consequences of their strategy and decisions. They also had to report on their company performance to a group of shareholders, most of whom they had never met before. The success of their company relied on forming effective team skills, including good communications, accountability and cohesion. Each member needed to contribute from a specific skill set in order for the team to be able to address the complexity of the various components of the business. Given that the simulation ran for 8 years (rounds), the students had to analyse and formulate responses over a period of time in response to the changing market conditions, which differ from the traditional static one-time assessment of a given point in time.

The subject builds on the previous subjects in the business degree and introduces a forum where the students can experience and practice professionalism in an ongoing business environment. Their exposure to writing minutes, business reports and running meetings in the context of an evolving business was unique from their other subjects. Student comments focused on the practical, hands-on

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approach that reinforced the theory they had previously learnt. They also appreciated the approach to teamwork and enjoyed the "fun and engaging" way of learning.

Role-playing in chemistry education

While the majority of students agreed that copper gains something from the air when heated, one student in each case thought copper gains something from the flame or copper loses something to the air. The students unanimously enjoyed the role-play and the way the difficulties were presented by choosing the following alternative in Question 4: "I really enjoyed how the role-play contextualized the difficulties scientists experienced in trying to understand what happens in a chemical reaction". Particular enjoyment was expressed as the lecturer and third-year student were dressed in costume and put on accents to resemble a French and Italian speaker. Humour helped students really engage with the conversation in the French café. No students felt that the role-play was a waste of time as far as chemistry revision was concerned but neither did they feel that all the chemistry material should be delivered as a role-play. The substances or processes responsible for the different colours of copper when exposed to a flame were correctly identified in Questions 2 and 3 by five of the seven students.

Responses to Question 5 (What did you learn from the role-play that you had not known before?) are summarised in Table 5.

Table 5. *Responses to Question 5 by each student. (N=7)*

Student	Response Summary
1	French chemical history; different theories of the time.
2	Lavoisier's wife and her concerns; copper's different oxidation states.
3	Exposure to a flame required for oxidation.
4	Kitchen and laboratory chemistry; café as a meeting place to discuss chemistry; French leaders in 18th century chemistry; chemistry can be enjoyable.
5	Controversy regarding chemical reactions.
6	Controversy regarding whether something was lost or gained on heating.
7	Copper's different oxidation states have different colours; controversy regarding chemical reactions.

Even though copper's different oxidation states featured in a previous laboratory session, two of the seven students thought this was new knowledge for them from the role-play. There is some evidence, then, that the role-play not only entertained but informed. The fact that the same body of data can result in different conclusions is paramount to this controversy and this is something that four of the seven students gleaned from the role-play. Traditional chemistry teaching has been classified by Duschl (1990) as a 'rush to abstraction' and 'final form science' which 'short-circuits' deep understanding by 'cutting off' all human and epistemological contexts (Wandersee & Baudoin-Griffard, 2002). Begoray and Stinner (2005, p. 464) describe traditional science teaching as, "disciplined and tidy, but also dull and largely impenetrable". Braund (2015, p. 107) labels this kind of science as deadly theatre where science presentation "is still hampered and suffocated by overreliance on exposition and teacher-directed

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discourse that results in transmission learning….". The role-play is designed to counteract this trend and, according to the responses in Table 5, there appears to be some measure of success.

In contrast, the use of drama and role-play, where the classroom is "filled by a much richer and enhanced experience" enables students to enter what Braund (2015, p. 108) calls holy theatre which "allows pupils better access to abstract concepts". Ødegaard (2003) views drama or role-play as contributing to three areas of learning in science education: learning about concepts; learning about the nature of science; and learning about the interaction between science and society. The concepts of metal oxidation in air, different oxidation states and the role of controversy, debate and argument in scientific practice, feature in the role-play described in this paper. Students specifically comment on these ingredients of the role-play as seen in Table 5. The role-play described in this paper brought our classroom alive and proved to be an excellent way to revise some of the ideas that emerged from a previous laboratory exercise. Braund (2015, p. 112) has noted that, "It is possible that drama has a place to play as an addition to practical work, to improve its impact". This has been verified in the study reported here.

Discussion

In an effort to make the learning and teaching in one tertiary institution more innovative and interdisciplinary, academic staff met to discuss their different ideas on innovation. The main thread of the discussion was the need to make learning more student-centred. One of the recurring themes was the impact of role-plays on student learning. It was interesting and somewhat surprising to discover that role-plays were being used across disciplines. The decision was made to collect data on student perceptions of role-plays as a learning tool in order to explore the usefulness of this instructional technique.

The results section of this paper revealed that there were common themes that emerged from the data. Students indicated that role-plays challenge their preconceived ideas, encourage them to think creatively and assist them to make the transition from theory to practice. An added benefit is that role-plays make classes fun and engaging while providing active learning experiences that increase student participation and learning. For those students studying teacher training, students were able to see good teaching modeled and add role-plays to their repertoire of teaching ideas.

The most convincing aspect of this exercise is that though each of the lecturers organized and implemented their own role-plays in isolation from each other and collected student feedback on the process in different ways, when all the data was put together the same four themes emerged. The themes are expressed in different ways for each discipline but the meaning is the same. Table 6 identifies the themes and links the outcomes from each discipline.

Limitations to the use of role-plays include preparation time and possible initial student apathy to the process. The lecturer needs to be aware of the different personalities and allow introverted students to warm to the activity while the outgoing students take the lead.

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Table 6. *The four emergent themes across the four disciplines*

	Classroom management	**Pre-service teacher preparation**	**Business Education**	**Chemistry Education**
Theme 1	Challenged ideas	Developed teacher confidence	Helped students see the consequences of decisions	Common chemical processes were questioned
Theme 2	Caused students to analyse approaches	Linked theory to practice	Developed student knowledge and skills	Contextualized the difficulties scientists experience
Theme 3	Challenged student's personal belief system	Stronger professional identity	Required students to use critical thinking	Acknowledgement that role-play caused deep thought realisations of new information
Theme 4	Helped students focus	Promoted experimentation and reflection	Students found it engaging and practical	It brought the classroom alive

CONCLUSION

Role-plays have long been recognized as valuable learning activities at all levels of education. In this paper student perceptions of the impact and usefulness of role-plays at the tertiary level have been discussed. The results suggest that role-plays can be used successfully across disciplines and that students find them to be refreshing innovations in learning and teaching.

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