CHAPTER 17

Guiding information-finding missiles: A reflection on adapting assessments to maximise student learning in the online environment

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Abstract

Students in higher education (HE) are resourceful and creative in their information-seeking, and are able to find answers to questions very fast. Whether they are able to critically assess the value of the information they find for validity and usefulness is, however, questionable. When the global Covid-19 pandemic forced HE institutions to present courses online, I was unable to use the engaged (work-based/community) learning methodologies I usually use to achieve course outcomes and had to look to other routes of assessment. I considered a summative test-and-quiz assessment route that is the norm in our faculty and realised this would merely give students the opportunity to show off their information-finding skills, and do nothing for their learning. Thus, in the first week of Emergency Remote Teaching in 2020, I had to find alternative ways to assess, so that students could demonstrate creativity, originality and critical thinking, rather than just recalling/finding information. I draw on my recent experiences and reflect on two assessments redesigned for the online space, using Schön's (1991) model for reflection-in-action for science-based professions. I reflect on whether learning outcomes were met and examine my key challenges in the online space. I explore whether the assessments showcased students' critical abilities,

teamwork skills and communication. I appraise my own reaction to student feedback and reflect on how the experience has grown my abilities as an educator. With the immediate and long-term future of HE delivery uncertain, it is likely that most courses will require online components, and I consider the value of using the adapted assessment methods, even in the event that the world returns to post-Covid normalcy.

Keywords: assessment, online learning, information, adapting, critical thinking

Introduction

Students in higher education (HE) are information-finding missiles. Schwieger & Ladwig (2018: 45) note that Generation Z (individuals born between 1996 and 2012) has been raised with technology incorporated into their everyday lives, unlike any generation before them in human history. As a result, they are incredibly resourceful and creative in their information-seeking, using any and every means, and they are successful in finding answers – very fast. Whether they are able to critically assess, for validity and usefulness, the value of the information they find, is quite another matter.

I teach in the Agriscience Faculty at Stellenbosch University (SU), where the tradition is to examine students' knowledge and understanding through the use of summative exams, even at the higher NQF levels. There has been a move towards "flexible assessment" modules in our faculty because it has been recognised that engaged teaching and learning methods (for example, work-based learning and project/problem-based learning) are extremely valuable in meeting high impact (HI) learning criteria (Kuh 2013: 59). Positive correlations have also been

noted by these authors between HI activities, deep learning, and self-reported gains (personal and practical) for students. Kuh et al. (2013: 57) described activities that have been shown to meet HI learning criteria including learning communities, writing-intensive courses, collaborative learning, and research. Furthermore, the top three attributes sought in new employees in any sector include the ability to work in a team, problem-solving and written communication skills (Schwieger & Ladwig 2018: 49). According to the SU Teaching & Learning Policy (Leibowitz et al. 2017: 9), the SU student should be provided with the opportunity to grapple with issues of efficiency and mastery and matters of value so that graduate attributes are enhanced. At SU these include having an enquiring mind, being an engaged citizen, a dynamic professional and a well-rounded individual (Leibowitz et al. 2017: 7). Thus, when I originally designed the second year Wine Science (Oenology) modules (all flexible assessment) in 2016, I needed to ensure that my assessment activities would include engaged learning methodologies that maximised employability in the Agricultural sector, Kuh's criteria and SU graduate attributes.

Context

There are a number of important outcomes in our second-year modules in the oenology (wine science) modules I teach that provide essential, underpinning knowledge for the third and fourth years of our programme. The students need to understand industry context (history, trade, global impact, sustainability and occupational legislation), and also the deep technical aspects of winetasting (cultivar aroma, influence of *terroir*, etc) to make sense of subsequent academic work and their own place in the industry. Usually, Kuh's high impact learning activities would be met through visits to industry in order to achieve

these outcomes. For example, in order to understand cultivar aroma, and the influence of *terroir*, students are expected to visit Wine of Origin areas to gather experience and information. To meet outcomes around consumers and marketing, students are expected to do a period (3-4 days over the semester) of service in tasting rooms. In order to get a grip on the Health and Safety aspects of wine legislation, they need to carry out an audit of a winery on site, using a checklist, and talking to the winemakers about hazards.

Up until March 2020, I had very positive feedback on these industry-based opportunities, and had been satisfied that learning was happening very satisfactorily. Then the Covid19 pandemic hit, and we had to go (within a period of three weeks) fully online, with zero face-to-face interaction. Not only that, but all tasting rooms, sales and movement of alcohol were prohibited. This had a huge impact on my ability to provide learning opportunities for my students. I could not even provide wine for tastings, as this was not available anywhere, including our Department's own "Vinoteek". We were forbidden from accessing any wine at all. The students could no longer do site visits, were unable to buy or transport wine, and I was left completely helpless as to how to meet course outcomes.

Schön's Theory of Reflective Practice

One of my go-to methods as an engaged learning practitioner has been reflection. Using reflection as part of assessment is challenging in the sciences, but has been shown to be a high-impact tool for students if good feedback is provided (Chabon & Lee-Wilkerson 2006: 147; Al-Rawahi & Al-Balushi 2015: 368; Phuthi & Mpofu 2021: 314). Reflection can help students to decipher meaning in what they are learning, and can thus yield useful information about how this connects back to the

overall course objectives. Likewise, reflection has been an important part of my own journey as a lecturer in HE in SA, and has been part of my own transformation from scientist/oenologist to a citizen who is deeply concerned with the state of the world, our wracked country and education system, and our students' welfare and learning.

Donald Schön (1930-1997) was a philosopher and educational theorist who had a deep respect for practitioners' abilities to use active reflection to enhance their professional practice. He saw reflection as a practical way of synthesising tacit knowledge and ability (Kinsella 2010: 567). Interestingly, he defined professional practice and the practitioner's ability to manage unique and difficult situations as an 'artistry' (Kinsella 2010: 567). Schön's theory is that there are two main types of reflection: 'reflection in action' and 'reflection on action', with a precursor step 'knowing in action' (Schon 1991). Unlike Kolb's (1984) reflective theory, Schön's theory is not a circular model of reflection, and draws a clear distinction between reflection during the event (reflection in action) and reflection after the event (reflection on action).

Knowing in action: This concept is a less commonly cited aspect of Schön's theory, and provides a basis for understanding Schön's appreciation of the role of intuition that practitioners bring to uncertain, unstable, and unique situations.

Reflecting in action: This is when a practitioner experiences and considers a situation, decides how to act, and does so immediately, and this often occurs during the event, which may help the practitioner to become more dynamic and responsive.

Reflection on action: According to Schön, the practitioner thinks about what has transpired, takes time to pause and reconsider the situation,

and ponders what needs to change going forward. This enables the practitioner to spend more time considering the situation, considering various interpretations, and thinking about how they could respond differently in the future.

Despite the fact that reflecting during an event might feel somewhat strange to the uninitiated, this model has several definite advantages. Schön's theoretical perspective is positive and empowering because it encourages one to be dynamic by reflecting on the situation immediately and coming up with a creative solution. Thus, it appeals to busy practitioners who may not be able to make time to carry out reflections after the event, or just forget to do so. It can be performed during and/or after the event, which makes it flexible in rapidly changing circumstances. The practitioner develops new ways of doing that incorporate insights from previous instances of reflection (Kinsella 2010: 573).

Reflection

Knowing in action: When the global Covid-19 pandemic forced HE institutions to present courses online, the go-to response (knowing in action) on the part of most of my colleagues was online tests and quizzes. These were relatively easy (time-consuming but doable) to set up, but my own deep-seated mistrust of these methods meant that, although I was happy to use them as "self-checks" for student progress, I was intuitively unhappy about using them for actually monitoring learning and assigning a lot of credit to them. In my opinion (subsequently proved by my colleagues' experiences) the summative test-and-quiz assessment route merely gives students an ideal opportunity to show off their information-finding and 'connected' skills, even with very tight timelines and real-time cameras focussed on their

every move. In fact, looking at it from a different perspective, the students' ability to find unique and intricate routes past the restrictions we attempted to impose on their access to information is testimony to their innovative and creative skillset. These skills are highly commendable and speak to a number of graduate and employability attributes, but unfortunately, they do not address the module outcomes in terms of learning the content. I therefore decided to try and make use of the students' natural abilities to find information, but to guide them to use their critical and analytical facilities to sift out the valid and useful information from the non-sense and find ways to use that information creatively by synthesizing new material/ creating knowledge for themselves.

Reflecting in action: My first challenge was building a foundation of cultivar knowledge and aroma attributes with no wine available, and students unable to access or transport any alcoholic products. I decided to use activities described by Kuh *et al.*. (2013: 57) to meet high impact learning criteria (learning communities, writing-intensive courses, collaborative learning, research), and divided the class into groups. I set them a research task with a creative, as well as a written, output. I asked them to design an "Aroma Wheel" for a particular wine cultivar. This is a colourful, visual representation of the characteristic aroma attributes of the wine. In order to achieve this, students were encouraged to go back through their own winetasting notes from first year (and the few months up to hard lockdown), research the popular and primary literature, and design a wine-aroma wheel for three cultivars/winestyles within their group. Thus, they were creating new knowledge based on their own lived experience, and unique olfactory memories while including classic cultivar descriptors. As aroma wheels do not exist for a large number of winestyles, and a lot of cultivars, this

was not something they would easily be able to plagiarise, so I felt confident that they would need to think for themselves. They could hand draw, and take photos to upload their design, or use any online resource they liked to assist them with production of the wheels. I was really pleased as I designed this assessment, as I felt I had addressed issues that we would otherwise have needed twenty to thirty hours of practical in, possibly without any learning on the part of the student. I felt they had no choice BUT to engage in learning through this exercise.

The second intervention was even more complicated, and once I had embarked on it, I cursed myself roundly for having attempted it. It took a huge amount of input on my part, but I could not backtrack, as I felt it really was a good way to facilitate the students' learning around Occupational Health and Safety (H&S). I was locked in and could not get out, gritting my teeth, as I ploughed my way through creating this monster of an assessment. It was a two-stage process. I disembowelled the old Powerpoint presentations in which I had "transferred" information to the students regarding hazards in wineries, using the old Banking model (Freire, 1970:73) of learning. I gave them ten pictures of winery hazards, and asked them to identify the problems therein (I called it their 'Hazard Analysis'). I designed a template for their answers. I then provided them with online readings, checklists and detailed feedback on their answers and asked them to create a H&S Plan for a small winery which included all the hazards they had identified, as well as others outlined in the readings. They could use any resource, including existing H&S plans, as long as they cited their source. They were expected to work individually. I felt instinctively that this was going to be a mistake...

In both assessments, they needed to outline their research process in an accompanying document, in which contributions by each member of

the group needed to be demonstrated. I set clear directions in an assessment brief, and wondered how they would manage. I was available on the elearning platform (Sunlearn) at specified times, as well as on email and WhatsApp for consultation. My intuition told me this would be challenging without the physical location of a winery to assess, and I felt quite apprehensive about the quality of work I would receive.

Reflection on action: The aroma wheel assessment seemed to be a popular exercise with the groups. When the students submitted the work (some of them by email), they commented that they had enjoyed the work. The submissions were of a high standard, and the students had definitely used their own language to describe wine attributes. Some groups had gone so far as to create wine-tasting wheels with holistic sets of descriptors, not just for aroma, but for taste and mouthfeel too. The submissions were attractive and interesting, and the "demis" assigned to help with the marking commented that they had enjoyed the students' interpretation. So all-in-all, I thought, a good exericse, that stretched the students and inculcated knowledge of wine aroma. They had in fact produced new knowledge, indigenous South African knowledge, by this work. I felt satisfied and realised that Kuh's HI learning activities communities (their groups), writing-intensive courses, problem solving and research had really helped me to design a good assessment which I believe had impact on the students' understanding of cultivar. I mused that there was not much I would change if I had the opportunity over again, except, of course, to ask the students to taste actual wine, and not just collate information. I felt that this assessment made me feel like an "artist-teacher", and it was, as Schön (1991) envisioned, an empowering exercise for me. A key challenge of the online space (viz. how do I get students to work with

the concept of aroma) had become a real opportunity for HI learning. The learning outcomes were met and that the assessments showcased students' critical abilities, teamwork skills and communication. There are changes I could make to improve this assignment. I could ask them to create aroma standards for the cultivar from their homes, take photos of substances with similar aromas, create a personal lexicon for each cultivar, but it was good enough for the time being.

The second assessment was a nightmare to mark. I marked around fifty H&S plans (because of the complexity involved in the task, and the specialist knowledge needed to assess the results. I realised I really had stretched the students. All of them had completed the Hazard Analysis (HA), but a significant percentage did not put much effort into their H&S plans. I was very disappointed at the results, and also disappointed that I had expended so much effort, time and energy on the assessment. In fact, in asking so much of the students, I was asking too much of myself. Despite the negatives, I realise that this exercise has also shaped my 'knowing in action' because I will not ask such onerous, administratively heavy tasks of individual students again, and will design the task so that the workload can be split between group members. The online challenge was to ask students to assess H&S in a winery they could not physically visit. Although I did not exactly meet this outcome, I learnt valuable lessons around design, and following my instincts. Schön has helped me to see that, had I listened to my inner voice and intuition about this assessment, I would have stepped back at the Reflection in Action stage, and simplified it further. I am using a far more concise version of the assignment this year, which focuses on key H&S issues.

Conclusions

Drawing on my experiences and reflecting using Schön's model (1991) I have considered two assessments redesigned for the online space. The intense reflective experience made me realise that I **must** 'reflect in action' and trust to my own intuition and instincts. This experience has empowered me, as Schön predicted, and enabled me to grow, primarily through my own experiences, rather than through external facts or theories, thus enhancing my practice. It has allowed me to trust my instinct and acknowledge my 'artistry' as an educator (even if that artistry does not always produce masterpieces). Our students benefit because I design assessments that encourage them to think critically and creatively, and exercise discernment with regard to knowledge sources. With the immediate and long-term future of HE delivery uncertain, it is likely that most courses will require online components, and in hindsight, I am grateful that I was forced out of my comfort zone, and able to make use of the online environment and showcase what our students can achieve. Adapting assessments for the online environment can be a valuable opportunity to revisit module outcomes and reimagine ways of doing things that incorporate students' lived experience, thus creating new knowledge.

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