

Seeing them steadily and seeing them whole: describing the connections students make in networked learning

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Abstract

The practice of assessing students on what they can produce at the end of a higher education course as a credible proxy for learning has been steadily devalued for years. It will be given a final push with the embedding of generative AI into ubiquitous productivity suites such as those of Microsoft and Google. The design of learning in higher education has also been given a push by the pandemic, with the focus moving from the blunt instrument of blended learning to approaches more grounded in theory such as networked learning. Both of these trends mean that attention has been turning to the assessment of the processes of student learning, rather than a final product. The current language of assessment is still very much derived from the vocabulary of cognition – primarily Bloom’s cognitive domain taxonomy. Cognition is of course an important aspect of learning, but in order to track the development of student understanding, ability to apply knowledge, to analyse and evaluate situations as they move through their learning experiences, we need language that can describe their response to their learning experiences. Bloom’s team of educational psychologists recognised this over fifty years ago, and developed a taxonomy of educational objectives in the affective domain that would do just that. In this paper I elaborate on how Bloom’s affective taxonomy can be used to assess such things as learning processes, and to make visible to students and educators the forming of connections that underpin networked learning. I illustrate this with an example drawn from a networked learning course. In this course students were asked to write short weekly reflections on their learning experiences. The act of writing the reflections was given a small mark, but the content was not assessed. Post hoc evaluation of the content of these reflections using the affective taxonomy showed a wide variety of affective response by students to learning experiences. A preliminary analysis shows a correlation between the depth of affective response and a student’s final mark. This approach shows great promise in not only designing assessment of learning processes, but in developing student efficacy in building connections and evaluating their own processes of learning.

Keywords

Transformational learning, networked learning, affective domain, reflection

Aim

In networked learning, the learning is designed around connections, between students, between students and educators, between students and course materials. However, there is often a mismatch between how a course set up along networked learning principles is designed, and how the students in that course are assessed. There has been almost complete focus on students’ cognition, with widespread use of Bloom’s taxonomy to design and measure learning. As we move to assessing the processes of learning, interest is increasing in tracking student response to learning. It is very difficult to claim that learning has been transformational without understanding how students have responded to it.

We can use learning analytics to see what students click on, how often they login, how much time they spend on a page. We can survey them to find out what made them feel happy, bored, excited, annoyed, there are validated instruments that will do that. But to learn something about the extent to which their learning experience has *transformed* them, we need to know how it has *affected* them. Over fifty years ago, a group of educational psychologists thought it was important enough, relevant enough to learning, to develop a taxonomy to describe affect, a companion to their far better known work on a taxonomy of the cognitive domain of learning. In this work I demonstrate how Bloom’s affective taxonomy (Krathwohl et al., 1964) can illustrate the connections that students are creating to their course materials and to their peers.

Background

The concept of networked learning offers educators a different way of thinking about the structure of learning experiences, away from the outdated delivery of content and dilemmas about what to put on the learning

management system. Instead, learning is recognised to be promoted by connections: connections between learners; connections between learners and educators; and connections between learners and the learning resources, connections inevitably mediated by various technologies (de Laat & Dahn, 2019). Learning takes place during the forming of connections, the enacting of connections, and in contemplation of the connections – to acknowledge Gourlay’s admonition to remember the silent and often undocumented processes of learning that students construct on their own (Gourlay et al., 2021; Gourlay, 2023). Networked learning, because of its roots, eludes a neat definition, but is rather to be recognised by its principles, context, and goals (Gourlay et al., 2021). Underpinning the principles of networked learning is a long tradition of critical pedagogy (Hodgson & McConnell, 2019), and the learning experience should develop critical reflexivity, agency, and collaborative skills in students and educators alike. Relationships are crucial, and time must be allocated to developing them (Hodgson & McConnell, 2019). Yet in most higher education institutions (HEIs), courses are structured around sets of learning outcomes with a strong cognitive focus, and students are often assessed on the artefacts they can produce that demonstrate their attainment of those outcomes. The advent of generative AI tools has pushed many HEIs into reworking their assessments to value higher order cognition such as critical thinking, but also to put more emphasis on the processes of learning (Moorhouse et al., 2023). Setting aside questions of whether the individual learning journeys of students should be subject to surveillance (Gourlay, 2023), it is apparent that the tools of assessment need to be modified as the value and utility of networked learning becomes apparent. This paper directly addresses the question of assessment in networked learning raised by the revisiting of the definition exercise by the networked learning community described by the Networked Learning Editorial Collective (NLEC, 2021).

Context

The course under advisement is a large (N=595) course on developing leadership skills in times of crisis open to any undergraduates at the university. It was designed using networked learning principles, there was heavy emphasis on students developing their personal understanding of leadership, all tutorial activity was collaborative with an emphasis on co-construction of knowledge and skills. The course material was deliberately unstructured to allow students to choose to engage with content that was of personal significance to them. Relationship building exercises formed part of the tutorial activities in early weeks. Students were expected to write weekly reflections on both their interaction with the course content and on their workshop experiences. These reflections were the source material for a final summative assessment piece in which students were asked to reflect on how their personal understanding of leadership had changed throughout the course and what skills they now needed to develop. In recognition that learning processes were not only an important thing to monitor, but also to make students aware that they were, we introduced a five-part sustained participation assessment, worth 20% of the total mark. Four marks each were assigned to the completion of the two streams of weekly reflections, with full marks being awarded if a student entered reflections 75% of the time. The reflection mechanism was closed at the end of each week to encourage the development of sustained learning behaviours. Detailed analysis of the components of the participation mark showed that completion rates of the reflections correlated strongly with students’ final mark, making it a good proxy for learning habits that were successful. In the course of reading through some of the individual reflection entries, it became apparent to me that often student were describing their *connection* to the course material, to an experience they’d had in a workshop, or to their fellow students, and how it had affected them. This led me to the research question investigated here: what can be learned about the connections students are making in their learning through weekly reflection entries?

Method

Upon realising that valuable information about student learning processes was to be found in the reflection entries, I turned to Marina Harvey’s (Harvey et al., 2019) work on identifying multiple levels of affective response in short reflections to more deeply analyse the reflection data. Harvey’s team proposed that use of Bloom’s affective taxonomy (Krathwohl et al., 1964) could more comprehensively describe the relationship between student academic performance and their emotions than traditional reflective frameworks, or than the more commonly used Bloom’s cognitive domain (Anderson et al., 2001) on its own. I followed Harvey’s example of assigning a numerical value to the depth of response, as shown in Table 1.

Table 1: Bloom's Affective Taxonomy

1	Receiving	Students passively attend to the experience. The student brings their prior experience which may facilitate or hinder their recognition of the phenomena to which the teacher is trying to sensitise them.
2	Responding	Students actively attend to the experience and respond in some way to it.
3	Valuing	Student shows a level of commitment to the ideas they have been exposed to, they express a belief or an attitude in their behaviour
4	Organisation	Student has incorporated the value or idea into their existing beliefs, they have an abstract conceptualisation of the value or idea.
5	Characterisation	Student has changed their entire character and value system as a result of their experiences, they exhibit consistency of the new behaviour in all social roles they assume, in public and in private life.

I then chose at random a sample of ten sets of reflection entries from students who had completed a complete set (a complete set was 25 entries – two per week for 12 weeks then one in the last week). I assigned a number as indicated in Table 1 to each entry in order to gauge the depth and variety of affective response in each entry. No student attained a 5, the authors of the taxonomy themselves (Krathwohl et al., 1964) suggest that a depth of affect of that level could only be attained over a period of years.

Preliminary results

Weekly short reflections by students, even when not directed to think about their experience of learning, can reveal a great deal about the connections students are making in a networked learning environment when examined using the language of affect. Connections revealed are not just between students and course content.

Students revealed in their reflections a range of levels of affect between 1 and 4. I present here a short summary of preliminary trends observed:

- There is no trend of increasing depth of affect observed in the reflection entries over the course of the semester
- There appears to be some correlation of the average depth of affect across the 25 entries for each student with final grade
- There appears to be some correlation of the average depth of affect across the 25 entries for each student with the mark the student's group assigned them for being an effective team member
- There were clearly some weeks where depth of affect dropped on average for all students
- There was a slight uptick in depth of affect in the very last reflection entry of the semester

Discussion and further work

As this course was designed for networked learning, students were shown the connections they were expected to make. Group work skills were scaffolded in workshops, all activities were collaborative, they were encouraged to connect their own experiences to those presented on the learning management system. The rubrics for their assessments described for them the levels of cognition they would need to display in order to be successful in the course. Preliminary analysis of their reflections shows that some students were capable even at the beginning of semester to respond deeply to their learning experiences, documenting their changed understanding, linking course material to a desire to acquire a skill or to a new value. This kind of response is what we seek to achieve in networked learning (NLEC, 2021), so we need to make it as clear to students what this looks like so that they can develop the kind of agency over their response that they already have over their cognitive development. This work shows that it can be done using the language of the affective domain. Further analysis of the reflection set should more clearly show what correlations might exist between levels of affect and various connections built into the course. The promise shown by use of the affective domain taxonomy means that I will develop affective criteria to add to the assessment rubrics in order to make visible to students the kinds of responses expected for deep learning to occur, which will require a further cycle of analysis. This is one way the question of assessment in networked learning can be addressed (NLEC, 2021).

Conclusion

We share learning objectives and marking rubrics with students in order to support their understanding of what is expected that they display/produce throughout a course. They become familiar with the increasing complexity of command they are expected to show over course materials. In the networked learning space, we expect students to make connections across spaces that span the digital and physical often assuming they will instinctively know how to do this. We rely on our carefully crafted learning design online, and on the charm of our tutors in the physical space. These are not sufficient conditions for transformative learning. The time has come for Bloom's affective domain to assume the dominance that the cognitive domain currently holds in assessment, introducing ways of making the individual student learning journey visible. The example presented here shows one way of doing that.

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