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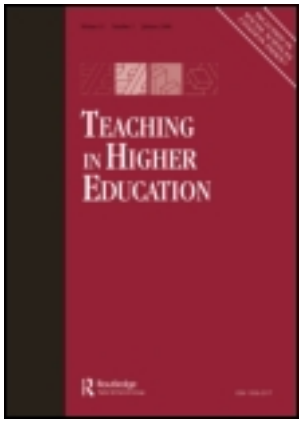

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Learning outcomes: a conceptual analysis

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Learning outcomes have become widely used in higher education, but also misused to the point of being controversial and a bureaucratic burden. This paper distinguishes three kinds of learning outcome found in current literature: (1) those used in individual teaching events; (2) those specified for modules or short courses; and (3) those specified for whole degree programmes. The nature of each is explored and their use in assessment and auditing is discussed, together with related notions such as the 'corridor of tolerance', emergent outcomes, etc. It is concluded that learning outcomes used in individual teaching events (1) are the most useful kind if employed flexibly, but that they cannot be specified exactly or used for auditing performance, and their relationship with assessment is complex. Learning outcomes specified for modules or short courses (2) state little more than a list of contents; they cannot be stated precisely and have limitations in guiding assessment. Learning outcomes specified for whole degree programmes (3) is a misuse of the term 'learning outcome'.

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In recent decades, the term 'learning outcomes' has become widespread in educational literature, and the idea has found extensive application amongst educational practitioners, including those in higher education. Alongside these developments there has grown a debate about the merits and demerits of learning outcomes and, while some have embraced them with enthusiasm, others have viewed them very critically or argued that they have been misused. The most frequently voiced criticism is that learning outcomes have been hijacked by managers of education for use as a performance indicator—that is, as a means of measuring the performance of both teachers and taught—and that, consequently, they have mutated from a useful educational tool into a bureaucratic burden. They have become an inconvenience whose effect has been to distract attention from other significant outcomes (Price 2006). It is claimed that the process has been a major factor in the rise of managerialism in education and to a series of corresponding dysfunctional outcomes, such as the commodification of knowledge.

However, during this time, the meanings and applications of the term have multiplied and diversified, and it is reasonable to suggest that much of the debate will hinge on what version of learning outcomes is being considered. In this paper, we will delineate what we believe are important meanings of the term in current use, and examine the differences between them and the implications these differences have for practical applications. This will include a discussion of the relation between the various meanings and other important ideas that learning outcomes involve. The point of this investigation is to try to decide what are the most appropriate or

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defensible uses of this fashionable idea. Our discussion will be focused on learning outcomes within higher education, but much of what we say will be applicable elsewhere.

Learning outcomes can be divided into different categories in several ways. For example, James and Brown (2005, pp. 10–11) examined accounts of projects and were able to distinguish seven categories: (1) *Attainments*: generally involving '... mastery of specific rules or mental procedures associated with particular tasks, ... frequently open to straightforward traditional means of assessment'. (2) *Understanding*: '... of ideas, concepts, processes'. (3) *Cognitive and creative*: '... imaginative construction of meaning, arts or performance'. (4) *Using*: '... how to practice, manipulate, behave, engage in processes or systems'. (5) *Higher-order learning*: '... advanced thinking, reasoning, metacognition'. (6) *Dispositions*: '... attitudes, perceptions, motivations'. (7) *Membership, inclusion, self-worth*: '... these reflect the learners' affinity towards, readiness to participate in and sense of worthwhile contribution to the group where the learning takes place'. This is a very useful categorization of a learning outcome and will be employed here. It tells us what component or components a learning outcome may possess, and can be applied to the specification of learning outcomes or to the description of the changes in a student who has achieved a learning outcome. Hussey and Smith (2003), following Megginson (1994, 1996), distinguished between intended and emergent leaning outcomes, with a continuum between the two consisting of contiguous, related and incidental learning outcomes. They also divided learning outcomes into those that were predicted and those that were unpredicted, together with those that were desirable and those that were undesirable. These ideas will also be employed here. There are other ways of differentiating learning outcomes, such as according to who the various constituencies of interest may be: students, teachers, managers, the community and so on.

However, the categorization that we wish to discuss in this paper is that concerning the 'unit of activity' involved. That is to say, we shall distinguish between those learning outcomes that (1) apply to an individual teaching event such as a seminar, class or lecture; (2) to a module, short course or NVQ course; and (3) to a programme of study, such as a whole degree programme, that leads to a qualification. We will show that there are important differences between these, which have been either overlooked or ignored.

Learning outcomes used in teaching events

The most obvious purpose of a teaching event, such as a seminar, class, lecture or practical session, is that the students will learn something. Therefore, it seems very sensible that the teacher prepares for the session by deciding what he or she wants the students to learn during the forthcoming activity. In doing so, the teacher may list, on paper or mentally, the intended learning outcomes, together with a plan for teaching in a way that facilitates this learning. In this context, a learning outcome would consist of a relatively specific and long-lasting change in the students who achieve it. This change might occur in any one or more of the seven categories identified by James and Brown (2005) and listed above, which represent aspects of the student's psychology and behavior.

This use of learning outcomes has a long history, and experienced teachers might remark that we are talking about traditional objectives as applied to a teaching

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session, but using a more fashionable term—'learning outcomes'—found in Gagne (1974), and later sketched by Ing (1978), who discussed the way in which children learn, and who produced a list of learning outcomes similar to that provided in James and Brown (2005). In each case, the intended learning outcome must be of a realistic magnitude and level to be achieved in the teaching session.

As examples, we might imagine a history tutor intending to introduce students to the difference between primary and secondary sources; a physics teacher introducing the students to the Planck constant; a biologist explaining the relationship between natural selection and sexual selection; a tutor in design presenting the idea of the golden section; a mathematics tutor setting out to improve student's skill in interpreting graphical representations, a music teacher drawing attention to the seductive dangers of overuse of a passing 6/4, or a craft tutor demonstrating the use of a grooving or plough plane. In each case, the idea or activity is potentially very extensive and complex, but we can imagine an initial introduction in which the basic idea or activity is introduced in its simplest form. Later teaching sessions will take the ideas or skills further, thereby requiring different learning outcomes to be specified.

Although this kind of learning outcome will specify something that is fairly specific and limited in magnitude, it is generally not possible to state these learning outcomes precisely whatever language of 'descriptors' is used (Hussey & Smith 2002). This is partly because all learning, apart from simple behavioral responses like chanting a times table or threading a sewing machine needle, is part of a continuum. Even chanting tables can be done well or badly. There are degrees of knowing, understanding, being capable, having an attitude and so on, and exactly where one learning event ends and another begins is largely arbitrary. Has a history student, who is studying the life of Charles Darwin, grasped the difference between primary and secondary sources when they know that one of Emma Wedgewood's letters belongs to the former category while Desmond and Moore's *Darwin* (1991) belongs to the latter; or is it when they can place any given document or artefact into one or other category, or when they eventually come to question the distinction itself?

Frequently the purpose of a teaching session is to reinforce, extend, elaborate, criticize or apply a concept that has been introduced on a previous occasion, or to allow a skill to be practiced and developed. On such occasions, it is neither possible nor desirable to frame supposedly 'precise' learning outcomes, as in any single teaching and learning episode the emphasis will vary as a function of a student's level of ability.

Such learning outcomes also defy precise definition because any description of them has to be interpreted in terms of the knowledge and understanding of the teacher. This is because the level and depth of what is to be learnt depends on the context—on the level of the material and the level of the students' previous understanding (Hussey & Smith 2002). Nonetheless, an experienced teacher will be able to specify the learning outcomes for a specific session in type of shorthand or summary form, and s/he will be able to interpret them by means of her/his knowledge on how to teach at that level. It is often good practice to start a teaching session by informing the group of students about what is to be covered. For example, a mathematics tutor might tell the group that today's session will enable them to distinguish between parametric and non-parametric statistics. However, since the

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terms used may be unfamiliar and virtually meaningless to the students, often learning outcomes cannot be specified exactly in advance.

There have been numerous attempts to connect learning outcomes with assessment (Gagne 1974; Ing 1978; Biggs 1999; Jackson 2000; Entwistle 2005), but it is not a simple matter. If we consider the learning outcomes formulated for a specific teaching session, they are unlikely to be directly measurable by an assessment exercise. They will often be too small or restricted in scope: a concept may require numerous applications, and a skill may require extensive practice before it can be said to be acquired by the student. Ideas and practices have to be elaborated and attitudes have to be reinforced before they are robust enough to be exhibited by the possessor. Therefore, while learning outcomes used for individual teaching events may build towards something that is assessable, they may not be, in themselves, suited to assessment.

There are further complications. It would be a very poor teacher who went into a classroom or seminar determined to produce, in his or her students, a certain number of specific learning outcomes, and who stuck rigidly to a programme whatever happened in the session itself. Eisner's vision springs to mind of a "... uniformed army of young adolescents all marching to the same drummer" (Eisner 2000, p. 344). Teaching involves a subtle interaction between people—often people with different wants, needs and agendas. Not all outcomes are intended: a discussion can take an unexpected turn; questions and answers can surprise the teacher and the class. Good teachers will grasp these occasions as opportunities or 'learning moments'. They will exercise what McAlpine et al. (1999) call a 'corridor of tolerance', in order to achieve a new or different learning outcome, or to keep the interest of the class, or bolster the students' self esteem, or make them feel part of a learning process and so on. Such *emergent* learning outcomes may be of varying desirability and relevance, and it is part of the teacher's task to decide whether they are worth pursuing (Hussey & Smith 2003). It is during such teaching opportunities that the qualities of the teacher are displayed most evidently.

Clearly some kinds of teaching session are more prone to these events. Part of the strength, and weakness, of formal lectures is that the lecturer is in control and can strive to cover the intended learning outcomes without being diverted. However, this is one of the reasons why lectures are not always successful; the skilled lecturer will be sensitive to the interests and moods of the audience and adjust the content accordingly, but the less skilled may plough on with his or her set speech regardless of how it is being received. Seminars are perhaps the events most likely to involve digressions and emergent learning outcomes. Overbearing control of seminars can undermine their point and fruitfulness.

From these considerations, it can be seen that while the kind of learning outcomes used in specific teaching events may be useful as a part of successful teaching, they cannot be employed in any naïve or unproblematic way as performance indicators. We can ask a teacher if they achieved what they hoped to achieve in a session, but if they did not this might be for very good reasons. The same topics might be tackled on a subsequent occasion and understood better because of today's discussion and today's emergent learning outcomes. The students' motivation, confidence and interest may have been increased or even transformed by what they had experienced. The 'corridor of tolerance' must remain in the possession of the teacher and colleagues may only advise or censure when it is blatantly misused—

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that is when important concepts, skills and so on are consistently neglected for the sake of little by way of compensation. Similarly, the teacher must retain the right to judge what value to place upon a possible emergent learning outcome. These are features of teaching, not auditing.

Learning outcomes for modules or short courses

It is now commonplace for higher education institutions to demand that academics specify learning outcomes when they design a module or short course as a component of a degree programme. These will be listed in the official documents and will probably be worded according to the special language of descriptors devised for the purpose. For example, in first year modules, the outcomes will state that students will be able to name, describe, and repeat; the second year modules will specify explaining, understanding and comprehending, while at the third year level, students will be capable of evaluating, analyzing, criticizing and so forth. Even if such crass and over-rigid wording is avoided, the learning outcomes will usually be specified as precisely as possible. Such learning outcomes will be fairly broad, they will specify much larger areas of knowledge or assemblages of skills than those specified for a teaching event, although those for NVQ courses may be more specific.

For example, a geology module dealing with plate tectonics might have such learning outcomes as: 'students will understand the concepts of convergent, divergent and transform plate boundaries', and 'students will be able to identify and describe a subduction zone and a mid-ocean ridge' and so on. An ethics module might include such learning outcomes as: 'students will be able to evaluate the strengths and weaknesses of consequentialism', and 'students will be able to distinguish between meta-ethics, descriptive ethics and normative ethics', 'students will be able to understand and critically evaluate the relativist/absolutist distinction', and so on.

These learning outcomes differ from those employed by teachers for individual teaching events principally by their size or scope. They are such that it is unlikely that they could be mastered in one session: they are the kind of learning that is normally achieved over several sessions. They will nearly always be more complex than those for teaching events, and will include several of the constituents listed by James and Brown (2005). However, as argued elsewhere (Hussey & Smith 2002), they are similar in that they do not lend themselves to precise definition. The level, such as first year or second year of a degree, and the depth of the knowledge or understanding, is implicit. That is to say, the written learning outcomes may specify such things as 'first year level' and use such terms as 'precisely', 'thorough understanding' or 'describe accurately', but this is only pseudo-exactness. It is a vain attempt to describe in words what can be recognized by an experienced teacher—someone who knows how to judge material at the required level. Once again, all of these learning outcomes can be achieved to different degrees and depths and, as before, the limits of what is to be learnt—what is to be included and what excluded—is always somewhat arbitrary. For example, would geology students '. . . be able to identify and describe a subduction zone . . .' satisfactorily if they did not understand its role in the Earth's carbon cycle? And how much would they need to know about the properties of the Earth's mantle? The answers to such questions as these will depend on the level of

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the module; the depth and detail that is expected within the overall degree programme; what has been learned previously and what is expected in later modules.

The learning outcomes for short courses and modules are useful as guides to the design of assessments. Coursework and examination questions and other exercises can generally be devised to measure whether these outcomes have been achieved. Again, the idea that the learning outcomes can be defined with such exactness as to give minute guidance to marking criteria is mistaken. The marking will be based on the implicit knowledge of the marker not on the spurious precision of the wording of a module document (Hussey & Smith 2002).

There are other parallels between learning outcomes for short courses and modules and those for individual teaching events but, again, these bring out important differences. First, it is possible to identify a 'corridor of tolerance' when teaching a module but it has a different meaning. Some topics may expand and others contract during the course of a one or two semester-long programme, and other topics may creep in unexpectedly. This will depend upon the interests of the students, the enthusiasm of the teacher, the circumstances of the time and so on. For example, in an ethics module the discussion of relativism and absolutism might be taken over by vigorous debate about religious absolutism and the divine command theory of morals; especially if the group contained, say, Muslim and Christian students and there was a suicide bombing incident in the news. It would be a pity if an over-rigid set of stipulated learning outcomes were to rule out such emergent learning outcomes. Assessment regimes must be sufficiently flexible to accommodate such innovations and diversions: perhaps by including questions that invite discussions of unspecified but related topics. However, because of the need to cover the vital topics or benchmarks in a subject area in order to provide what is needed for subsequent modules, the 'corridor of tolerance' cannot depend on the course tutor alone. There must be general agreement about what has to be covered within a module, and how much 'diversion' is acceptable. It would fall to the tutor to decide on the value and relevance of what emerges during the course, but these should be the professional judgments of academics not the stipulations of line managers.

If these arguments are correct, there is little difference between a statement of intended learning outcomes for a module and a list of contents, except one of fashion. If we specify the topics to be covered, the level—such as first year of an undergraduate degree—and the texts to be used, little is added by employing such terms as 'describe', 'understand' or 'critically examine'. What is appropriate will depend on the level and on the subject area. First year philosophy students will be expected to analyze and critically examine the ideas and theories with which they are presented, while this may be developed later with geology students; although even here their first year studies would not be entirely uncritical. A non-academic manager or an academic from a different discipline, who wished to judge whether the important topics had been covered in a module, or how well the students or teacher had performed, could not use a list of learning outcomes any better than a list of contents, since both presuppose the same understanding of level and depth.

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Learning outcomes for degree programmes

It may seem plausible to specify learning outcomes for a whole programme of study: for an undergraduate degree, a masters degree, post-graduate teaching certificate and so on. Indeed, Noel Entwistle (2005, p. 68) claims that:

> At institutional and governmental level the term "learning outcomes" is seen almost entirely in terms of whether the student has successfully completed a course of study—the grades and ultimately the level of degree awarded ...

However, if it makes sense to employ the term at all in this context, such learning outcomes would have to be very broad indeed. They would amount to a list of topic areas and skills that have to be covered by the programme. It would be otiose to state the level and depth of the knowledge, understanding or ability, since it would be that expected of an undergraduate degree or a masters degree or whatever the qualification happened to be. Such learning outcomes would include all of the seven constituents listed by James and Brown (2005), and would have to include all the benchmarks laid down for the discipline in question.

Clearly, if these are to count as learning outcomes, they are radically different from those employed by teachers in the classroom to the extent that it is misleading to employ the same term. They are even different from those used to specify what students will learn from a module; they would have to be an order of magnitude greater in scope and complexity. If given in any detail, they would have to specify the degree of inter-connectedness and integration between the material in the separate modules. If they specified attitudinal changes in the students, it would have to be about the degree to which they had identified themselves as physicists, biologists, criminologists, fine artists or whatever. There would be little gained by following a strict vocabulary of descriptors in specifying programme level learning outcomes—apart from nonsense.

As to the usefulness of 'degree programme learning outcomes' in guiding assessment, this would depend on the structure of the degree. In modular degrees the final honors grade is often determined by the marks achieved in the individual modules. There will generally be stipulations about weighting differences between modules of different levels, and the contribution of special components such as dissertations or projects, but this hardly amounts to the specification of leaning outcomes. Even in those non-modular degrees that rest entirely on final year examinations or projects, the specification of learning outcomes would be little more than a list of topics to be examined or skills to be tested, all expressed in very broad terms. The level of these pieces of learning would be given by the qualification in question, and what is accepted within the discipline as appropriate for that qualification.

The 'corridor of tolerance' would also have to be given a different meaning. It might be interpreted as the range of options amongst the modules or components of the degree programme, or it might reflect the amount of idiosyncratic choice of topic allowed tutors within the discipline area. Renowned professors might be allowed to lead undergraduates into esoteric topics so long as the basics were covered, but generally wide diversions, additions or omissions from the usual contents of a degree programme would have to be agreed by the institution. In many cases, other bodies would be involved. The QAA specifies benchmarks for all disciplines and, for

example, the British Psychological Society specifies what must be covered by a psychology degree if they are to give it their approval. This 'corridor of tolerance' would be quite unlike that exercised by a teacher stood in front of students. Similarly, it is not easy to see what an emergent learning outcome would be at the level of a degree programme or qualification. Those degrees that included a project or dissertation might allow the students to choose their topic and thus indulge their individual interests, but at least in the case of science degrees, this would have to be strictly within the limits of relevance and methodological requirements.

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Conclusion

If these arguments are valid, the term 'learning outcome' is most useful when employed by teachers to specify what they want their students to acquire from a given teaching event or session. Such learning outcomes will consist of summary statements roughly specifying fairly small pieces of learning, which would include some of the components listed by James and Brown (2005). Such learning outcomes would be flexible and provisional in the sense that various emergent outcomes might be tolerated or encouraged in their stead, for good educational reasons. They would point towards, or indicate in the most general manner, what is to be assessed but not determine it exactly, and they would not be suitable for the close auditing of the teaching and learning process—despite the fact that this is how they are sometimes used.

Those learning outcomes specified for a module or short course of study would be very different, and would state little more than an annotated list of contents. Attempts to make them precise statements for exactly specifying assessment tasks or for audit by those not familiar with the subject area are futile. The use of the term 'learning outcome' for what is to be included in a whole programme of study leading to a qualification such as a degree, constitutes a misuse. In short, the further away from students and the teacher in a classroom, the more remote, generalized and irrelevant statements of learning outcomes become.

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