Creativity and curriculum design: An integrated model

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Abstract

This article presents a model of curriculum development for higher education in the domain of communication based on the systems model of creativity. Employing this model allows curriculum design to integrate the desirable elements of student-centred, teacher-centred and content-centred teaching and learning models while decentring each of these approaches. The systems model is composed of three elements: domain, field and individual. In the proposed model of curriculum, neither the teacher nor the student nor the content has a privileged position; it is the dynamic interaction that creates an engaging learning environment. The teacher supplies the rationale for the course, explaining how and why the skills and knowledge presented in the course integrate with the student's program of study. Further, the teacher designs a course that is a sub-set of a larger domain of knowledge – no one course can contain everything. The course is then developed to supply useful and up-to-date content. The role of the course is not only to supply content from the over-arching domain, but also to enunciate the procedures of assessment and to be capable of accepting novel innovations and modifications. Development occurs with reference to the domain, the over-arching discipline area, and to the field, represented by the teaching team and their faculty peers with reference to university policies and procedures. The interaction between the student and the course is typically codified in student feedback on course surveys. Likewise, the interaction between the teacher and student is based on assessment events and student feedback on teaching. This article presents examples of how this model of curriculum development has been employed in media and communication courses, arguing that engaging learning experiences can be observed only at the intersection where students, courses and teachers interact.

Keywords: assessment; creativity; curriculum design; systems model

Introduction

The systems model of creativity as used in this article does not predict the production of a particular artefact; rather, it describes a system of interactions that are required for a creative process to occur. Likewise, a system of curriculum development – or, in a broader sense, an education system – does not predict how the individuals in the system will actually use their education. The process of curriculum development and the associated learning outcomes emerge from the underlying system. The underlying

system proposed by this article is based on the elements of the systems model of creativity.

McIntyre (2012, p. 204) encapsulates the view of creativity as a system that allows for the emergence of creative products and in the process provides a definition of creativity:

> Creativity is an activity where some process or product, one that is considered to be unique or valuable in at least one social setting, comes about from a set of antecedent conditions through the located actions of a creative agent. Each factor belong to a system in operation and creativity emerges from that system in operation.

Throughout this article, this definition will be called upon to illustrate and illuminate the relationships between a domain of knowledge and its subset, called a course; a field of experts and its subset, called a teacher; and a group of agents who are often referred to as students. The article will also use the terminology 'program', meaning an academic program of study leading to an award, and 'course', meaning a unit, module or article that contributes to that program.

Systems model overview

Mihaly Csikszentmihalyi's (1999) systems model of creativity, which includes the individual, the field and domain in a system of circular causality, is a model of confluence in which 'Creativity is a process that can be observed only at the intersection where individuals, domains, and fields interact' (1999, p. 314). This quote highlights two crucial concepts that inform this article. The first is that creativity is a process. All too frequently, the attribute called 'creativity' is ascribed to a product or used as an attribute to describe an individual. The second concept is that of intersection. Examining the attributes of individuals, domains or fields in isolation provides an incomplete understanding of creativity. In the following diagrammatic views of the system of creativity and of curriculum development, the areas of intersection demarcate important interactions where all elements in the system contribute equally.

A domain is a set of rules, forms and conventions, and cultures vary in terms of how many domains they recognise. While Csikszentmihalyi (1999, p. 319) asserts that 'natural language and mathematics underlie most domains', there are additional 'formal notation systems for music, dance, and logic, as well as less formal ones for instructing and assessing performance in a great variety of different domains'. In this regard, the faculty/department structure of many universities can be used as a metaphor to illustrate the multiplicity of domains organised within a culture. A science faculty, the domain of science, may include the sub-domains of mathematics, physics, chemistry and so on. Likewise, a humanities faculty may house the sub-domains of history, English and drama. The culture – the university as a whole – may not recognise or contain all possible domains: there may not be a department of stamp collecting, even though it is a domain typified by research, and has well-developed forms and conventions. Cultures can and do change, and domains come and go. For example, the

study of English literature is a relative newcomer to the academic world and its introduction met some opposition. E.A. Freeman, a Professor of History at Oxford in 1887, opposed the establishment of an English Department, stating that 'English Literature is only chatter about Shelley' (Graff, 2007, p. 123).

It is the field, that group 'entitled to make decisions as to what should or should not be included in the domain' (Csikszentmihalyi, 1999, p. 315), that is the social organisation that understands the domain. That group selects and assesses novelty based on its knowledge of the domain, its forms and its conventions. The actions, tastes and attitudes of the field have a profound effect. Even works that we may consider to be part of the canon of a particular domain may not have always been held in such high regard. For example, during his lifetime, J.S. Bach was a highly regarded organist, yet his compositions were considered 'a little old-fashioned' at time (British Library, 2009). The field has the power to add and remove material in the domain.

Through the process of domain acquisition, the individual develops their knowledge of the forms and conventions of the domain. Through various forms of education, cultural capital is constructed. In addition, the individual can develop their knowledge of the field and pursue access to the field: 'In many domains it is indispensable for a young person to be trained by experts as soon as possible' (Csikszentmihalyi, 1999, p. 328). The training needs not just to concentrate on the form and conventions of domain, but to provide guidance on the mechanisms for accessing members of the field and assessing how to best present their work to increase its likelihood of being accepted by the field.

Figure 1 is Kerrigan's revision of the original systems model diagram as proposed by Csikszentmihalyi (Kerrigan, 2013). The crucial addition provided by this model is a centre section that is given to 'creative practices'. By allowing practice to take centre stage, the model visually decentres the individual, the domain and the field as the possible loci of creativity. The proposed model for curriculum development is based on this version of the model.
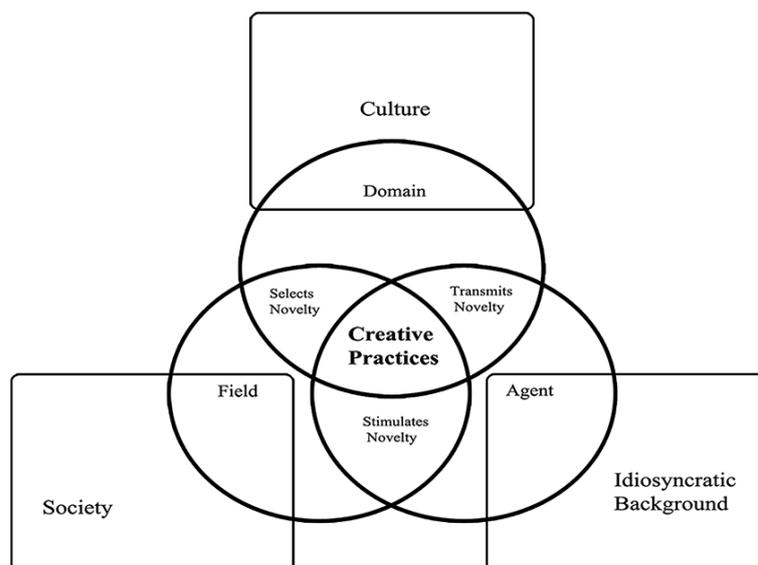
Figure 1: *Kerrigan's revision of the systems model of creativity (2013)*

Systems model of curriculum development

The systems model of curriculum development takes the existing elements and structure and reimagines them in an educational context. This section describes the attributes of the three primary sections of the model: the course/domain; the teacher/field; and the student/agent. The interrelated sections – the areas of intersections of the model titled interaction, selection and access – will be explored in a later section.
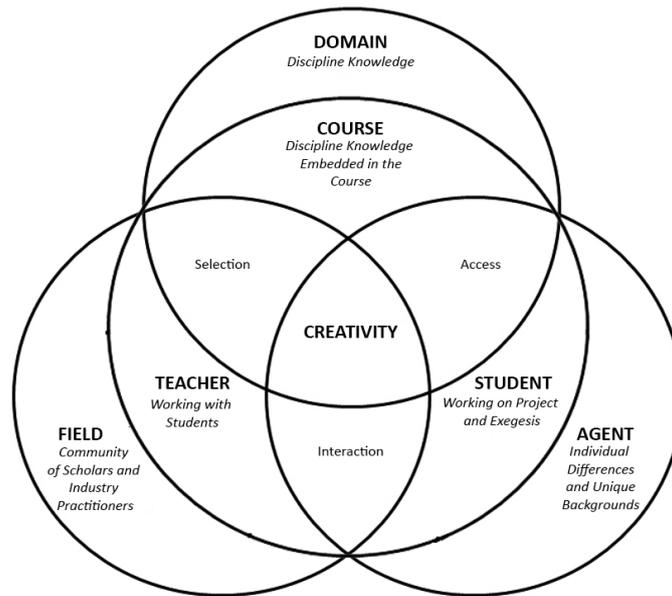
Figure 2: The systems model of curriculum development.

The course and the domain

No one course can hope to encapsulate an entire domain of knowledge. Recognising that a course will always be a subset of the parent discipline is a crucial first step in curriculum development. Frequently, a suite of courses will be developed to more adequately cover a disciplinary area. These courses will then often be linked by structural elements such as prerequisites and assumed knowledge that require students to undertake the courses in a prescribed order. Courses linked in such a fashion are then often grouped under the banner of a program such as Bachelor of Arts or Bachelor of Science. These program titles not only announce the over-arching domain; they declare – often imprecisely – which exact disciplines will be accepted in the program and which will be excluded.

The teacher and the field

The decisions about the content of any one course are often left to a single academic or, at best, a teaching team. This person or team, called the teacher in the model, is acting as a subset of the field. The content of the course is drawn from the domain with a rationale based on the requirements of the community of scholars, industry

representatives and in accordance with policies and procedures of the institution offering the course. This description could be read as suggesting that this process is always based on consensus; however, the interests of the community of scholars, industry representative and the institution offering the course may not necessarily be compatible. This situation, rather than being seen as a problem, is simply an attribute of the system – a system that is constantly in a state of iteration and review. The need for evaluation and reinvention is often formalised in institutional program and course reviews. For the teacher, the review process recreates the relationship with the field.

The student and the agent

A 'student' is a shorthand term to describe a range of possible agents, all of whom have a unique background with a set of individual differences. Each agent has a unique habitus (Bourdieu, 1990, p. 56). This presents curriculum development with distinctive challenges. The first of these is the desire to create a course that is valued by the student. Allowing for all individual differences would require the delivery of individualised bespoke courses. Pragmatically and financially, it is not be possible to fully customise a course so that it meets the requirements of every possible student. Economies of scale are crucial to the business of education. The second challenge lies in defining who the students are. The term 'student' is also used in a collective demographic sense. As noted above, courses frequently limit access to those with sufficient prior knowledge or who come from an associated disciplinary background. The sequencing of courses not only helps to cover disciplinary needs; it also helps to define who the students are. All students are agents, but not all agents are students of a particular discipline.

Access: Exchanges between the student and the course

Students choose and undertake courses for multifarious reasons:

> We can follow the distinction made by sociologist Talcott Parsons and ask whether the student regards his [sic] learning as expressive (valuing it as an opportunity to express and enlarge his capabilities) or as instrumental (valuing it as a means towards the satisfaction of goals external to itself). (Rowntree, 1987, pp. 44–5)

The relationship between the student and the course is best seen as a moment of 'domain acquisition' for the student. The acquisition of this knowledge does not merely make the student capable of passing the course; rather, it allows the student to internalise the rules and conventions of the domain. Kruger and Dunning (1999, p. 1122) argue that incompetent individuals – those who have not internalised the elements of a domain – exhibit the following traits.

> *Prediction 1.* Incompetent individuals, compared with their more competent peers, will dramatically overestimate their ability and performance relative to objective criteria.
>
> *Prediction 2.* Incompetent individuals will suffer from deficient metacognitive skills, in that they will be less able than their more competent peers to

recognize competence when they see it – be it their own or anyone else's.

Prediction 3. Incompetent individuals will be less able than their more competent peers to gain insight into their true level of performance by means of social comparison information. In particular, because of their difficulty recognizing competence in others, incompetent individuals will be unable to use information about the choices and performances of others to form more accurate impressions of their own ability.

Prediction 4. The incompetent can gain insight about their shortcomings, but this comes (paradoxically) by making them more competent, thus providing them the metacognitive skills necessary to be able to realize that they have performed poorly.

To meet the expressive and instrumental goals of education, the student needs to be exposed to the domain in manner that builds their competence. Further, the assessment of their work needs to provide feedback not only about the domain content but also about their approach to study and techniques for self-review. At the level of a program, where courses are grouped or sequenced, the student needs to be able to determine the logic of the relationships between courses. This is a challenge for curriculum design because it may not be until several courses have been undertaken that the student can recognise the need for, or value of, an individual course. At the time when the student undertakes the course, they may rate it poorly in satisfaction surveys.

A common mechanism used to supply program development with both direction and impetus is student feedback on course surveys. These surveys frequently contain an overall assessment on a program based on generic student satisfaction. The accumulated results of these surveys can be viewed at the QILT website (QILT, 2017). A problematic feature of these surveys is it can be difficult to differentiate between the effects that teaching has on program satisfaction and the effects that program structures and individual courses have on satisfaction.

Interaction: Exchanges between the student and the teacher

One of the principal exchanges between students and teachers occurs at the moment of assessment. This is the moment when the student first experiences the power of the field. An expert, the teacher, who represents the broader community of scholars and industry practitioners, assesses the quality and originality of their work.

The major issue to be considered is the effect of increased competition for what the students see as limited external rewards in their attempt to satisfy their instrumental goals. These limited rewards include the achievement of high grades in a course. Translating assessment into grades is seen as 'an act of reification, erecting a pseudo-objective façade … to repel debate' (Rowntree, 1987, p. 70). Obviously, this raises questions of how is it possible to know the 'student'. Moreover, does the 'student' have a group personality? Using a sociological model allows for these questions to be answered, at least in part, as the 'student' can be seen as a subset of a larger, more diverse group of agents.

Strain theory is Robert Merton's (1938) version of anomie theory, developed from Emile Durkheim's (1952) earlier work on suicide. In Merton's theory, when culturally

prescribed goals (good job, nice house, societal respect, etc.) are in short supply, and the institutionally available means to achieve these goals (employment, education, familiar connections, etc.) are not equally available to all, there will be an increase in deviant behaviour. The following table outlines the deviant adaptations that occur where the 'channels of vertical mobility are closed off or narrowed' (Agnew & Passas, 1997).

Table 1: *Merton's strain theory*

	Culturally prescribed goals	**Institutionally available means**
Conformity	Acceptance	Acceptance
Deviant adaptations		
i. Innovation	Acceptance	Rejection
ii. Ritualism	Rejection	Acceptance
iii. Retreatism	Rejection	Rejection
iv. Rebellion	Replacement	Replacement

The conformist accepts the validity of the culturally prescribed goals as well as the institutionally available means of achieving those goals. The majority of students believe that hard work and diligence will be rewarded, and that the rewards, the goals are worth attaining. Against the conformist position are the deviant adaptations.

Innovation refers to the adoption of illegitimate means of achieving the prescribed goals. The goals are not rejected just the institutionally available means of achieving those goals. In terms of achieving high grades, this equates to students cheating, plagiarising, 'recycling' assignments or having a 'substitute' undertake exams. Students also become very guarded about their work: they are reticent to share or be involved in group projects. Traditional assessment schemes and grading systems exacerbate this behaviour by placing undue importance on the cultural value of achieving high grades rather than on actual learning. This can be inadvertently exacerbated by institutional procedures, such as calculating a student's Grade Point Average (GPA) based on grades achieved in courses (e.g. Pass, Credit, Distinction, High Distinction or letter grades) rather than raw percentage scores. Consider the example of two students separated numerically by one percentage point who are on the cusp of a higher grade. The student with the numerically higher mark will receive a significant boost in their GPA. The difference in the quality of work produced by the two students is miniscule and not accurately reflected in the reified GPA system. Problematic outcomes like this suggest to students that their GPA, or their performance in an individual course, is not solely a function of their work but is a function of a process that is beyond their control. Even in institutions that explicitly state that normative assessment is not to be applied and a bell-curve distribution of course results is not expected, students remain suspicious of process required to achieve high grades.

Ritualism is the rejection of the goals coupled with 'an obsessive attachment to the institutional means' (Downes & Rock, 1995, p. 108). This behaviour is typified by the question, 'Will this be in the test?' The student is not concerned by the acquisition of knowledge; rather, they are locked into rigidly following the course outline and

religiously meeting the requirements – usually the minimum requirements requiring only minimal engagement and minimal risk. Again, this behaviour can inadvertently be exacerbated when assignments, descriptions and rationale only state the minimum requirements. That is, the requirements state what is required to achieve a pass grade rather than what is required to excel. This is a cause of frustration for the ritualistic student, who may properly argue that they completed the assessment requirements and were horrified when they only achieved a pass. The use of structured and scaffolded marking rubrics can mitigate this situation.

Retreatism is the rejection of both the goals and the means. The 'drop-out' rejects both the value of the course (or the goal of education as a whole) and the means of achieving success in the course. However, there is no attempt to reconfigure either the goal or the means into a more meaningful form. Although this leads to attrition – something all institutions would wish to reduce – it can be a valid life choice for a student.

By contrast, rebellion is the attempt to replace the accepted goals and means with alternative ones. This behaviour is typified by those students who do good work, but it simply isn't what the assessment event asked for, or by students who attempt to renegotiate the assessment criteria. This kind of rebellion can lead to some of the most interesting student–teacher interactions on one hand or to mutual frustration on the other. Rebellion can be reduced with appropriate negotiation. The student who wishes to use an assessment event to produce an outcome other than that specified in the course outline and required by the marking rubric, may be accommodated through the application of a learning contract. Such a contract would specify a modified assessment event and rubric that still meets existing course learning outcomes.

Competition in assessment tends to reduce legitimate sharing, remove the advantages of 'mutual conditioning and reinforcement' and decrease the student's willingness to take intellectual risks (Rowntree, 1987, p. 43). The systems model of curriculum development attempts to reduce 'Innovation', 'ritualism' and 'retreatism' while allowing a meaningful level of 'rebellion'. The rebellious student is more likely to take those intellectual and academic risks most admired in creative people, and to develop expressive goals for their education.

The other common interaction between the student and the teacher comes in the form of student feedback on teaching surveys. These institutional surveys are problematic not so much because university management may feel the need to use the results, but because the student may not be able to distinguish between offering feedback on teaching and offering feedback on the course. To be fair to students, teaching staff may be no more skilled in distinguishing one survey type from the other. As the student, the course and the teacher coexist in a system and the system operates in an highly interactive and iterative manner, it should come as no surprise that neither staff nor students can easily distinguish between the survey types. The division between the content of a course and its teaching is more a matter of managerial convenience.

Selection: Exchanges between the teacher and the course

As noted above, it is the teacher who selects what can, could and should be in the course. These decisions are premised on the antecedent conditions offered by the domain and on

input from the field of scholars and industry representatives. This statement suggests that these decisions are comparatively easy to make, and that they would automatically find support from the field. Experience suggests that this is not the case.

One of the best documented examples of course development is the case of Richard Feynman's (1998) work on introductory physics lectures. Richard Feynman, the 1965 Nobel Prize laureate, was asked in 1961 to develop a series of lectures to engage first-year physics students with the ambition of reducing attrition rates in physics courses. As a plan, this would appear to contain the ideal mix of attributes: a world leader in physics research who was also a well liked, respected and talented teacher with a clear brief from his colleagues and their support. Feynman carefully selected the material for his course from the domain of physics. He even rejected some topics on the basis that he could not present those topics in a manner that a first-year student could accept. This inability to simplify and clarify the topic was, he argued, an indication that the topic was not fully understood by the field – himself included (1998, p. xxii). It is noteworthy that he didn't blame his inability to include the topic on the 'quality' of the students or on the general state of science education. Despite the best of intentions, Feynman's experiment failed:

> Many of the students dreaded the class, and as the course wore on, attendance by the registered students started dropping alarmingly. But at the same time, more and more faculty and graduate students started attending. (1998, pp. xxii–xxiii)

This example highlights the need to see course and curriculum development as a system in action, requiring time for iterative and recursive development, rather than as a single solution to the most pressing immediate problem.

Examples

In the School of Creative Industries at the University of Newcastle, this systems-based approach to curriculum development has been employed in courses offered in the Bachelor of Communication degree. The courses are based on a range of disciplines, including professional writing, digital publishing and interactive design. Courses in the media and communication domain employ a collaborative learning approach, where students and staff are expected to share their knowledge, skills and abilities. To further this teaching and learning strategy, students are allowed to resubmit assessment events where they feel they can demonstrate enhanced learning outcomes from assessment feedback. This strategy seeks to deal with the following issues, which recast the issues of incompetence predicted by Kruger and Dunning:

1   Students undertaking technology-based courses and online courses tend to have 'penny-drop' moments of understanding that may not occur in time for an assessment event.

2   Students may not fully understand the assessment criteria until they see the quality of work produced by others in the class or until they receive specific feedback on their work.

3   These courses require students to develop their visual, written and oral communication skills, and to be not only competent but also literate across a range of media forms.

4   The 'one attempt only' approach to assessment discourages students from taking creative leaps and academic risks.

This strategy is intended to allow students to fully engage with the course material and to develop for themselves the best learning outcomes. It also encourages rigorous assessment and grading. In other words, resubmission does not create a soft option: students are completely responsible for their results; they cannot blame the course or the lecturer. The only way to do well in the course is to behave professionally – stay engaged, learn from feedback and develop critical self-reflection skills. Students are told that it is possible to do worse on an assessment event after resubmission. Where a student has thoughtlessly created new errors in their work in a poor attempt at 'fixing' the original submission, their grade can be reduced. This again reminds students that they are responsible for their grade and for the approach they take to their studies.

This assessment scheme is employed with very positive effect in a range of courses. Further, in these courses, the student work is either mounted on a university web server or screened for an audience of field members. In this environment, each student can see every other student's work. As the work is visible to all it is almost impossible to hide cheating or plagiarism. The transparency of this process also helps the students to understand the assessment criteria; they can easily see work that is both better and worse than their own. This aids learning through encouraging the students to reflect on their work and the work of others. These assignments are designed to assess each student's ability to integrate the skills and knowledge presented in the course into their own projects.

Conclusion

McIntyre's (2012) definition of creativity that was quoted at the start of this article can now be rephrased as a definition of curriculum development based on a systematic model:

> Systematic curriculum development is an activity where some course or program, one that is considered to be unique or valuable in at least one educational setting for a particular cohort of students, comes about as a sub-set of domain knowledge, through the located actions of a teacher and a field of scholars and industry representatives. Each factor belongs to a system in operation and creativity emerges from that system in operation.

The examples of both successes and failures provided above suggest that curriculum development, like creativity, is not a lock-step process of known steps with guaranteed outcomes, nor is success guaranteed by the application of good intention. Like the creative process, curriculum development is a highly iterative and recursive activity that needs to react quickly to change.

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