INFORMATION NOTES FROM THE PARTICIPANTS

OECD MEETING ON FOSTERING AND ASSESSING STUDENTS’ CREATIVITY AND CRITICAL THINKING IN HIGHER EDUCATION

20/6/2016 - 21/6/2016
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Information Note

Please fill in this information form with brief answers. The idea is to share information about programmes or projects so that they give a concrete idea of what is/was done. About 2 pages.

Name of programme and institution: PRODUCT DEVELOPMENT, DESIGN FACTORY, AALTO UNIVERSITY (FINLAND)

Name of respondent: Katja Hölttä-Otto

Description and definition

1. How does your programme(s) foster student creativity, and how is creativity defined (if explicitly defined)?

No formal definition of creativity.

Foster creativity in many ways:

1) Teach creativity methods (lectures, workshops, applying to real problems)
2) Problem based learning & open ended design tasks to help think more broadly and openly about a problem
3) Encourage hands on experimenting (prototyping, testing)
4) Facilities to support the above (open 24/7, labs for all types of quick prototyping, flexible spaces for any activity, inspiring interior and a kitchen)

2. How does your programme(s) foster students’ critical thinking, and how is critical thinking defined (if explicitly defined)?

No formal definition.

Problem based learning is designed to make students gather data in traditional and creative ways (trends, needs, experiences etc.) and synthesize those for decision making. Students are required to make their own decisions regarding e.g. design direction, to help them make good decisions themselves (as part of a team). This is repeated throughout the courses.

Examples of pedagogical activities and assessments
OECD meeting on Fostering and Assessing Students’ Creativity and Critical Thinking in Higher Education

3. Please give two concrete examples of pedagogical activity (or any other relevant information) that tries to develop your students’ creativity and/or critical thinking.

The product development major already described above in #1 & #2. Overall school level plans to ensure creativity and problem based learning are also part of the earlier curriculum before choosing the major.

4. Please give two concrete examples of assignments, exams or other form of assessment ((or any other relevant information) that you use (or could be used) to assess students' creativity and/or critical thinking.

Design projects are assessed in reviews where the creativity of the solution and level of thinking in the process that lead to it are assessed by a multi-disciplinary teaching team. Also a report is handed in few times a semester. As part of these the thinking and process are emphasized in the beginning in addition to divergent ideas, the emphasis moves to the solution at the end.

In creativity, the assessment is about the number, novelty, and variety of the ideas. For critical thinking, the assessment looks at well justified decisions.

Project sponsors (when an industry sponsored project) are asked to assess the project. One question directly asks about the creativity in the project.

5. Does your institution/programme use a standardised test monitoring the acquisition of critical thinking and/or creativity? If yes, specify which one (or what it consists of if designed locally).

No.

Progression

6. If you use a rubric or qualification framework of any kind to monitor students' level of performance in creativity and critical thinking, please report the levels below. (Please attach any document.)

Not as part of program, but a separate research study looks into this. See e.g.


Information Note

Please fill in this information form with brief answers: The idea is to share information about programmes or projects so that they give a concrete idea of what is/was done. About 2 pages.

Name of programme and institution: COLLEGE OF DESIGN
NORTH CAROLINA STATE UNIVERSITY (US)

Name of respondent: MEREDITH DAVIS

Description and definition

1. How does your programme(s) foster student creativity, and how is creativity defined (if explicitly defined)?

WE ARE ENGAGED IN A 5-YEAR, UNIVERSITY-WIDE, DOMAIN GENERAL STUDY OF TEACHING CRITICAL AND CREATIVE THINKING: The first 2 years focus on freshmen in general education courses. Years 3-5 will integrate this content vertically (freshman through upper division courses) in various majors. We are in the third year of the study and have trained 76 faculty who worked with 2231 students in the test sample.

Creative thinking is generating new ideas within or across domains of knowledge, drawing upon or intentionally breaking with established symbolic rules and procedures. It involves bringing together existing ideas into new configurations, developing new properties or possibilities for something that already exists, or discovering or imagining something entirely new.

• Analyzing and evaluating information/context in order to frame the problem scope
• Synthesizing information and generating multiple solutions to the problem
• Exercising insight about alternatives and choosing a solution
• Evaluating the worth and consequences of an implemented solution
• Elaborating in convincing modes of communication to share ideas with others

2. How does your programme(s) foster students' critical thinking, and how is critical thinking defined (if explicitly defined)?
Critical thinking is the active, persistent, and careful consideration of a belief or form of knowledge, the grounds that support it, and the conclusions that follow. It involves analyzing and evaluating one’s own thinking and that of others.

- Raising vital questions and problems and formulating them clearly and precisely
- Gathering and assessing relevant information
- Reaching well-reasoned conclusions and testing them against appropriate criteria and standards
- Openly considering alternative systems of thought or points of view
- Effectively communicating to others the analysis of questions and/or proposal for solutions to problems

Examples of pedagogical activities and assessments

3. Please give two concrete examples of pedagogical activity (or any other relevant information) that tries to develop your students’ creativity and/or critical thinking.

THE STUDY TRAINS FACULTY IN THE USE OF:

Scenarios / Analogical thinking / Concept maps, argument maps, and decision trees / Information visualization / Simulations and prototypes / Textual analysis / Discussion and debate / Peer-to-peer critiques / Case studies

Faculty customize activities using these general strategies for teaching their discipline, critique them in peer-to-peer reviews, and archive them on a university website

4. Please give two concrete examples of assignments, exams or other form of assessment (or any other relevant information) that you use (or could be used) to assess students' creativity and/or critical thinking.

See below under question 5

5. Does your institution/programme use a standardised test monitoring the acquisition of critical thinking and/or creativity? If yes, specify which one (or what it consists of if designed locally).

FOR CRITICAL THINKING: Critical Thinking Assessment Test developed by Tennessee Tech University (scenario-based, faculty scored, uses visual/verbal/and numerical information. access to comparative data at other universities)

FOR CREATIVE THINKING: A common rubric for evaluating creative projects developed by university faculty. We also use a student reflection instrument we developed in combination with the common rubric. This allows us to collect student perceptions of intent and self-regulation that
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may not be apparent in the work products. Faculty develop their own projects based on a one-week training workshop but use the same rubric and reflection.

Progression

6. If you use a rubric or qualification framework of any kind to monitor students' level of performance in creativity and critical thinking, please report the levels below. (Please attach any document.)

See below
# Rubric scoresheet

**STUDENT’S NAME:**

<table>
<thead>
<tr>
<th>SCORE</th>
<th>COMPETENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>A</strong> Does the student articulate the problem and its scope?</td>
</tr>
<tr>
<td>2</td>
<td>1. Provides no clarity in the definition of scope</td>
</tr>
<tr>
<td>3</td>
<td>2. Defines the problem partially</td>
</tr>
<tr>
<td>3</td>
<td>3. Defines the problem clearly but omits relevant aspects of scope</td>
</tr>
<tr>
<td>3</td>
<td>4. Defines the problem and its scope clearly and with depth and breadth</td>
</tr>
<tr>
<td></td>
<td><strong>B</strong> Does the student support the definition and analysis of the problem with evidence?</td>
</tr>
<tr>
<td>2</td>
<td>1. Fails to interpret or question sources</td>
</tr>
<tr>
<td>3</td>
<td>2. Interprets sources superficially and/or provides partial analysis</td>
</tr>
<tr>
<td>4</td>
<td>3. Evaluates sources using the intellectual standards of critical thinking but without depth or breadth</td>
</tr>
<tr>
<td>4</td>
<td>4. Evaluates sources using the intellectual standards of critical thinking and provides depth and breadth in the analysis</td>
</tr>
<tr>
<td></td>
<td><strong>C</strong> Does the student identify assumptions and the relevance of evidence to the problem context?</td>
</tr>
<tr>
<td>3</td>
<td>1. Shows little awareness of assumptions and cannot distinguish relevant concepts from irrelevant ones</td>
</tr>
<tr>
<td>2</td>
<td>2. Questions some assumptions and/or cannot prioritize concepts by relevance</td>
</tr>
<tr>
<td>3</td>
<td>3. Identifies assumptions and some concepts as being more relevant than others</td>
</tr>
<tr>
<td>4</td>
<td>4. Challenges assumptions and analyzes concept relevance systematically</td>
</tr>
<tr>
<td></td>
<td><strong>D</strong> Does the student combine ideas in coherent and logical ways?</td>
</tr>
<tr>
<td>1</td>
<td>1. Does not recognize connections among existing ideas</td>
</tr>
<tr>
<td>1</td>
<td>2. Connects ideas but in incomplete or illogical ways</td>
</tr>
<tr>
<td>1</td>
<td>3. Combines ideas in predictable but logical ways</td>
</tr>
<tr>
<td>1</td>
<td>4. Combines ideas into new forms in inventive and logical ways</td>
</tr>
<tr>
<td></td>
<td><strong>E</strong> Does the student address contradictory evidence or perspectives?</td>
</tr>
<tr>
<td>1</td>
<td>1. Fails to recognize and/or acknowledge the value of divergent perspectives</td>
</tr>
<tr>
<td>2</td>
<td>2. Recognizes divergent perspectives but cannot describe how they might be significant to solving the problem</td>
</tr>
<tr>
<td>3</td>
<td>3. Recognizes divergent perspectives and can provide a coherent narrative about how they might be significant to solving the problem</td>
</tr>
<tr>
<td>4</td>
<td>4. Integrates divergent perspectives in the solution to the problem</td>
</tr>
<tr>
<td></td>
<td><strong>F</strong> Does the student generate multiple solutions to the problem?</td>
</tr>
<tr>
<td>1</td>
<td>1. Follows a singular approach</td>
</tr>
<tr>
<td>1</td>
<td>2. Uses a few elements but with limited exploration</td>
</tr>
<tr>
<td>1</td>
<td>3. Experiments with elements and variables but shows difficulty in addressing their appropriateness systematically</td>
</tr>
<tr>
<td>1</td>
<td>4. Uses many elements successfully and considers multiple variables through systematic investigation</td>
</tr>
<tr>
<td>SCORE</td>
<td>COMPETENCY</td>
</tr>
<tr>
<td>-------</td>
<td>------------</td>
</tr>
<tr>
<td>G</td>
<td>Does the student demonstrate originality?</td>
</tr>
<tr>
<td></td>
<td>1 Restates available ideas</td>
</tr>
<tr>
<td></td>
<td>2 Experiments with novel ideas without fully resolving the application to the problem at hand</td>
</tr>
<tr>
<td></td>
<td>3 Combines existing ideas in original ways or transfers them to a new context</td>
</tr>
<tr>
<td></td>
<td>4 Extends novel ideas to create something entirely original</td>
</tr>
<tr>
<td>H</td>
<td>How does the student respond to changes in the context or problem constraints?</td>
</tr>
<tr>
<td></td>
<td>1 Continues to pursue the initial strategy</td>
</tr>
<tr>
<td></td>
<td>2 Makes few changes in the face of change and/or relies on a single vehicle of thought</td>
</tr>
<tr>
<td></td>
<td>3 Adapts partially to change in context and recognizes that a change in thinking strategy is called for</td>
</tr>
<tr>
<td></td>
<td>4 Adapts to changes in context and moves fluently across vehicles of thought (visual, verbal, numerical) as appropriate to the problem restated</td>
</tr>
<tr>
<td>I</td>
<td>How does the student go about making judgments about alternative solutions?</td>
</tr>
<tr>
<td></td>
<td>1 Values all alternatives equally and defends them with criteria unrelated to the problem</td>
</tr>
<tr>
<td></td>
<td>2 Connects attributes of alternative solutions to various problem constraints</td>
</tr>
<tr>
<td></td>
<td>3 Ranks solutions according to how many constraints are satisfied</td>
</tr>
<tr>
<td></td>
<td>4 Selects appropriate solution that satisfies problem constraints and resolves competing priorities</td>
</tr>
<tr>
<td>J</td>
<td>Does the student take intellectual or creative risks in the generation and selection of solutions?</td>
</tr>
<tr>
<td></td>
<td>1 Interprets assignment narrowly/literally within stated guidelines</td>
</tr>
<tr>
<td></td>
<td>2 Considers new directions but narrowly interprets assignment guidelines</td>
</tr>
<tr>
<td></td>
<td>3 Uses unfamiliar (to the student) but proven approaches to solving the problem</td>
</tr>
<tr>
<td></td>
<td>4 Follows through on risky alternatives and goes beyond assignment guidelines</td>
</tr>
<tr>
<td>K</td>
<td>Does the student predict consequences and the significance of a solution?</td>
</tr>
<tr>
<td></td>
<td>1 Reaches overly-simplified conclusions about a solution that are consistent with evidence</td>
</tr>
<tr>
<td></td>
<td>2 Reaches conclusions about a solution only through evidence that appears to support the desired outcomes</td>
</tr>
<tr>
<td></td>
<td>3 Reaches conclusions about a solution logically from available evidence but can’t account for contradictions among evidence</td>
</tr>
<tr>
<td></td>
<td>4 Reaches conclusions about a solution logically through the application of intellectual standards to the evaluation of evidence</td>
</tr>
<tr>
<td>L</td>
<td>When making presentations, does the student elaborate on the ideas that underpin solutions?</td>
</tr>
<tr>
<td></td>
<td>1 Provides a description of the solution without articulation of overarching ideas or principles</td>
</tr>
<tr>
<td></td>
<td>2 Provides a partial explanation in which overarching theories or concepts are an afterthought to the presentation of the solution</td>
</tr>
<tr>
<td></td>
<td>3 Provides a coherent narrative that offers some insight into generalizable concepts and principles but doesn't link them to attributes of the solution</td>
</tr>
<tr>
<td></td>
<td>4 Provides a coherent narrative of how the solution represents overarching theories, general concepts, and &quot;the big picture&quot;</td>
</tr>
</tbody>
</table>
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**Score**

**Competency**

M How does the student explain ideas to others?

1. Uses incoherent arguments in presentation formats that are inappropriate for the audience and the context of the presentation
2. Uses predictable arguments in presentation formats that may not be particular to the audience or context of the presentation
3. Constructs coherent arguments using presentation formats that respond to the audience and context of the presentation
4. Constructs persuasive arguments using presentation formats that respond to the audience and context of the presentation
Information Note

Please fill in this information form with brief answers. The idea is to share information about programmes or projects so that they give a concrete idea of what is/was done. About 2 pages.

Name of programme and institution: **Higher Education and research Standing Committee of EI/Europe**

Name of respondent: **Jens Vraa-Jensen**

**Description and definition**

1. How does your programme(s) foster student creativity, and how is creativity defined (if explicitly defined)?

According several international standards set by UNESCO, CoE, Magna Charta Universitatum etc., it is in very short the role and mission of universities to search for a deeper understanding of humanity and the surrounding society and earth. A close connection between research and teaching will foster the critical mindset and the creativity in order to enable students and graduates with the ability to search for improved understanding and new ways of organizing human life and behavior. Academic freedom is necessary to protect the academic community from sanctions from political or economic powers, if they are being criticized.

2. How does your programme(s) foster students’ critical thinking, and how is critical thinking defined (if explicitly defined)?

Same as no 1.

**Examples of pedagogical activities and assessments**

3. Please give two concrete examples of pedagogical activity (or any other relevant information) that tries to develop your students' creativity and/or critical thinking.

More focus on Student Centered Learning – SCL. See this link to a project between ESU and EI: [http://www.esu-online.org/projects/archive/scl](http://www.esu-online.org/projects/archive/scl) The outcome of the project was both an analytical report on the development and pedagogical theory on SCL, and a toolkit for the development of SCL in the classrooms.
4. Please give two concrete examples of assignments, exams or other form of assessment (or any other relevant information) that you use (or could be used) to assess students' creativity and/or critical thinking.

Please refer to the reports above and find the 9 basic principles for SCL, which will foster more critical thinking and creativity among the student population than any standardized test or curriculum will be able to provide.

5. Does your institution/programme use a standardised test monitoring the acquisition of critical thinking and/or creativity? If yes, specify which one (or what it consists of if designed locally).

No, standardized testing etc. are not the best way of providing critical thinking or creativity.

**Progression**

6. If you use a rubric or qualification framework of any kind to monitor students' level of performance in creativity and critical thinking, please report the levels below. (Please attach any document.)
Information Note

Please fill in this information form with brief answers: The idea is to share information about programmes or projects so that they give a concrete idea of what is/was done. About 2 pages.

Name of programme and institution: i.school, The University of Tokyo (Japan)
Name of respondent: Hideyuki Horii, Professor and Executive Director of i.school

Description and definition

1. How does your programme(s) foster student creativity, and how is creativity defined (if explicitly defined)?

The i.school’s educational program is composed of workshops for 20-30 participants which are designed to develop the ability to create innovative ideas of products, services, business models and social systems based on human-centered innovation. Each workshop has a different theme and method, but common to each is a focus on group work in four or five groups. Students of The University of Tokyo can apply from all fields of study. The goals for i.school students are 1) when presented with a task requiring creativity, to learn how to design the most appropriate workshop process, and 2) to build up successful experience of creating innovative ideas leading to self-confidence.

Creativity is defined as the ability to come up with novel and valuable ideas.

2. How does your programme(s) foster students’ critical thinking, and how is critical thinking defined (if explicitly defined)?

Critical thinking is used in the evaluation and implementation of ideas, but we do not put emphasis on fostering students’ critical thinking since it is covered in other ordinary educational programs.

Examples of pedagogical activities and assessments

3. Please give two concrete examples of pedagogical activity (or any other relevant information) that tries to develop your students’ creativity and/or critical thinking.
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One example of i.school workshops is introduced. The topic was “Social innovation based on Collective Intelligence”.

(1) Lecture on innovation

A concept of human-centered innovation and activities of i.school at the University of Tokyo were introduced. Design of workshop process and mechanism of novelty were explained.

(2) Ice breaking and team formation

Games to create ideas of new services in a shopping mall were conducted to prepare for idea creation and to understand the analogical thinking. Created ideas were shared in each group for self-introduction and team formation.

(3) Analysis of existing services

Ten cases of existing collective intelligence services were introduced. They are categorized based on their provided values. Titles were placed for each categories created.

(4) Identification of social issues

One social issue to be solved was selected in each group.

(5) Idea creation

Ideas were created to solve the selected social issue by analogical thinking based on the categorized existing collective intelligence services.

(6) Selection and presentation of group idea

The best idea of each member was shared in each group and the group best idea was selected. Posters were prepared and ideas of new services to solve social issues were presented.

4. Please give two concrete examples of assignments, exams or other form of assessment ((or any other relevant information) that you use (or could be used) to assess students' creativity and/or critical thinking.
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We developed a method to evaluate output ideas created based on analogical thinking. With the method, the performance of participants and factors affecting it are analyzed. We are also testing assessment forms used at the end of each workshop.

5. Does your institution/programme use a standardised test monitoring the acquisition of critical thinking and/or creativity? If yes, specify which one (or what it consists of if designed locally).

No.

Progression

6. If you use a rubric or qualification framework of any kind to monitor students' level of performance in creativity and critical thinking, please report the levels below. (Please attach any document.)
Information Note

Please fill in this information form with brief answers: The idea is to share information about programmes or projects so that they give a concrete idea of what is/was done. About 2 pages.

Name of programme and institution: Dialogues of Learning, Lynn University (US)

Name of respondent: Dr. Gary Villa

Description and definition

1. How does your programme(s) foster student creativity, and how is creativity defined (if explicitly defined)?

Within the program we don’t explicitly define creativity. Creativity is fostered through a number of projects that students engage in through all four years of the program, during which they are expected to research various topics and propose solutions to problems in areas such as social justice, environmental conservation, business, etc.

2. How does your programme(s) foster students' critical thinking, and how is critical thinking defined (if explicitly defined)?

Within the program we don’t explicitly define critical thinking. Critical thinking is fostered through a number of projects that students engage in through all four years of the program, during which they write numerous research papers and create a similar number of presentations on a variety of topics ranging from citizenship, justice, and faith to topics in science, the environment, and technology.

Examples of pedagogical activities and assessments

3. Please give two concrete examples of pedagogical activity (or any other relevant information) that tries to develop your students' creativity and/or critical thinking.
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In our Scientific Literacy Dialogue courses, students are given exercises in which they have to identify unknown objects by devising their own tests, carrying them out, and interpreting the results. Students in some of our Citizenship Project courses must evaluate social or environmental problems and propose novel solutions.

4. Please give two concrete examples of assignments, exams or other form of assessment ((or any other relevant information) that you use (or could be used) to assess students' creativity and/or critical thinking.

We use lab exercises in our Scientific Literacy courses in which students have to use critical thinking skills, and we use a standardized test (the Madison Assessment of Scientific Reasoning), which, among other things, assesses critical thinking.

5. Does your institution/programme use a standardised test monitoring the acquisition of critical thinking and/or creativity? If yes, specify which one (or what it consists of if designed locally).

While we do use standardized tests to evaluate some of the other learning outcomes of our program, we don’t specifically use one to evaluate creativity or critical thinking.

Progression

6. If you use a rubric or qualification framework of any kind to monitor students' level of performance in creativity and critical thinking, please report the levels below. (Please attach any document.)

We do not use rubrics specific to creativity or critical thinking, though both are embedded in rubrics for writing and oral presentation. The levels are:

Exemplary, Proficient, Satisfactory, Basic, and Unsatisfactory.
Information Note

Please fill in this information form with brief answers: The idea is to share information about programmes or projects so that they give a concrete idea of what is/was done. About 2 pages.

Name of programme and institution: **Challenge-based Curriculum Design at Tsinghua University (China)**

Name of respondent: **Ben Koo**

**Description and definition**

1. How does your programme(s) foster student creativity, and how is creativity defined (if explicitly defined)?

   Challenge-based Curriculum Design invites students to be active designers of course content. They are invited to engage with the early stage of curriculum design, and also allow them to participate in planning and executing the course. The creativity is shown by asking participants to refine the delivery mechanism, as well as the content detail of the subjects to be learnt.

2. How does your programme(s) foster students' critical thinking, and how is critical thinking defined (if explicitly defined)?

   Students are also invited to design assessment procedures for the courses. Critical thinking comes from a point where students and teachers are working together to define an objective method to assess learning outcome. They are also invited to review other students’ published work.

**Examples of pedagogical activities and assessments**

3. Please give two concrete examples of pedagogical activity (or any other relevant information) that tries to develop your students' creativity and/or critical thinking.

   Students are asked to select their own research topics. In the process, they are asked to present their arguments for why and how they are going to work on their research projects. The creativity comes from their open-ended space of possible topics, and their ability to make linkages or logical arguments for why they should do the project. The critical thinking part of the learning comes from a common procedure to evaluate whether the topic is worthwhile studying.
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1. Students are asked to create weekly blog entries on their own proposed topics. This is published on a locally installed MediaWiki server, so that people can see what others are proposing.
2. Students will review other teams’ work, so that they can identify new patterns and deficiencies in their own arguments.

4. Please give two concrete examples of assignments, exams or other form of assessment ((or any other relevant information) that you use (or could be used) to assess students' creativity and/or critical thinking.

For the Challenge-based Curriculum Design, we perform the following two kinds of assignments:

1. Students are required to propose at least three keywords on their MediaWiki entries every week. This new keywords can be defined already on the MediaWiki server, but they have to refine or create a new keyword entry. By observing the new keywords, we can see how the students are seeing their assignments in a different way, therefore, having a potential to demonstrate creativity.
2. In the middle part of the semester, student teams are sitting together to have a beauty-pageant on their research report. They idea is to allow them to come up with their preferred layout formats, their own pictograms, and their own content structures that can best visually or structurally represent their ideas before the whole report is finished. Other teams must provide feedback to tell them how to improve upon their existing designs.

5. Does your institution/programme use a standardised test monitoring the acquisition of critical thinking and/or creativity? If yes, specify which one (or what it consists of if designed locally).

No, not yet. We have been using some personality test standard tests, but not for creativity tests.

Progression

6. If you use a rubric or qualification framework of any kind to monitor students' level of performance in creativity and critical thinking, please report the levels below. (Please attach any document.)

We have not use a rubric or qualification framework. We have seen NETSA's report, but haven't used it.
Information Note

Please fill in this information form with brief answers: The idea is to share information about programmes or projects so that they give a concrete idea of what is/was done. About 2 pages.

Name of programme and institutions represented:

1. International Institute for Creative Entrepreneurial Development (IICED), University of Wales Trinity Saint David.
2. Royal Society for the encouragement of Arts, Manufactures and Commerce (RSA) (UK)

Name of respondent: Prof. Andy Penaluna

Description and definition

1. How does your programme(s) foster student creativity, and how is creativity defined (if explicitly defined)?

IICED focuses on the development of ideas through purposefulness, this includes applied creative thinking, opportunity recognition, problem identification and problem redefining as central concepts. Most of our work informs the enterprise and entrepreneurial learning agenda, with a focus on bringing practice into policy making. Our work is used in Quality Assurance for all UK Universities, as guiding principles in United Nations initiatives, as guiding principles in European Commission’s Citizen frameworks and for the OECD, in helping to develop learner assessment lenses that enable distinctions to be made between evaluating Innovation as well as Implementation in student performance metrics. (See: Penaluna & Penaluna 2015 (enc. 1)).

RSA’s aim is to enrich society through ideas and action. We believe that all human beings have creative capacities that, when understood and supported, can be mobilised to deliver a 21st century enlightenment. We work to bring about the conditions for this change, not just amongst our diverse Fellowship, but also in institutions and communities. By sharing powerful ideas and carrying out cutting-edge research, we build networks and opportunities for people to collaborate - creating fulfilling lives and a flourishing society.
2. **How does your programme(s) foster students’ critical thinking, and how is critical thinking defined (if explicitly defined)?**

IICED sees critical thinking as a natural foil to innovative thinking. This is based on the premise that inductive as well as deductive thinking is needed, that divergent thinking precedes convergent thinking and that the parallels between recent neurological research into insightful and analytical thinking need to be embraced in learning enhancing environments.

RSA Draws upon the experience of its Fellows and commissions / helps to fund critical pieces of research that help to identify opportunities and to develop critically evaluated proposals. As agents of change we need to be objective in our views and subjective in terms of contextual development.

**Examples of pedagogical activities and assessments**

3. **Please give two concrete examples of pedagogical activity (or any other relevant information) that tries to develop your students’ creativity and/or critical thinking.**

IICED has developed, based on its work for the European Commission and OECD, new curriculum and teacher education for the Macedonian primary and secondary schools system. Now a compulsory element of ‘Innovation and Entrepreneurship Education’, 2,500 teachers have been trained to use divergent as well as convergent thinking strategies and to evaluate performance through the ‘Two I’ lenses of Innovation and Implementation.

IICED conceptualised, led and developed the UK’s Quality Assurance Agency Guidance for Higher Education in Enterprise and Entrepreneurship, and supported the development of Education for Sustainability Guidance. Both these draw heavily on creative endeavour and alternative ways of thinking.

RSA, in partnership with the Further Education Trust for Leadership, is engaged in a series of ‘Possibility Thinking’ Summits across the UK – to reimagine the skills learners require. These include debates on innovation and leadership and the need to be creative leaders of change.

RSA is leading the UK’s ‘Cities of Learning’ project, which includes the Power to Create, Social Mobility and digital opportunities. Target audiences include policy makers, network builders and learning evaluation specialists.
4. Please give two concrete examples of assignments, exams or other form of assessment ((or any other relevant information) that you use (or could be used) to assess students' creativity and/or critical thinking.

IICED have developed a series of tools that assist educators to make distinctions between assessment that evaluates Innovation and assessment that evaluates implementation. Based on principles established within design education, and supported by evidence generated in cognitive neurology and brain development research, this includes the Bilateral Multi-Solution Finding Model, a Design-Based Enterprise Assessment Model and a Design-Based Evaluation Matrix. These are primarily based on the concept of ‘Curiosity-based learning’ and aim to generate multiple alternative ideas that can provide extended opportunities to consider critically.

RSA’s Family of Academies and the Teaching School Alliance are a dynamic and highly committed team who are focussed on developing learning and developing teacher abilities through: School-led Initial Teacher Training, School to School Support, Continuing Professional Development and Research that informs / supports the development of expertise that drives innovation in pedagogy. The ‘Research Rich Schools’ project illustrates this evidence gathering in action through three stages of Emerging, Expanding and Embedding Research and Development.

5. Does your institution/programme use a standardised test monitoring the acquisition of critical thinking and/or creativity? If yes, specify which one (or what it consists of if designed locally).

IICED and the RSA are keen to point out that context needs to be a consideration, and that normative assessment can be problematic as opposed to criterion referenced evaluation. What is new and imaginative in one context may be quite ‘old hat’ in another environment. Models of assessment such as those based on ‘Divergent Production’ are offered that enable more effective tracking of development in terms of idea generating capacity, idea evaluation capacity, idea communication capacity and divergency of ideas generation. When applied in ‘situations of ambiguity and risk’, these aim to develop flexibility and adaptability, resilience to change and more generally, an agile stance to problem identification and problem solving. Complexity and increasing levels of ambiguity in learning environments can be utilised to track development.
Progression

6. If you use a rubric or qualification framework of any kind to monitor students' level of performance in creativity and critical thinking, please report the levels below. (Please attach any document.)

UK Quality Assurance Agency for Higher Education: Enterprise and Entrepreneurship – Guidance for UK Higher Education Providers


European Commission Joint Research Centre ‘EntreComp’ including ‘Ideas and opportunities’, ‘Resources’ and ‘Into action’


South East Europe Centre for Entrepreneurial Learning: Entrepreneurial Learning: A Key Competency Approach (For learners, teacher and coordinators)


Also RSA research includes:
Creative Capacities encompass the capabilities and dispositions needed to generate new ideas and turn them into action.

Penaluna, Penaluna, Matlay and Jones 2013 - Convergent and Divergent Expression Pedagogic Framework (As employed at UWTSD).

Penaluna & Penaluna, 2014 - Bilateral Multi Solution Finding Model (As employed at UWTSD)

Information Note

Please fill in this information form with brief answers: The idea is to share information about programmes or projects so that they give a concrete idea of what is/was done. About 2 pages.

Name of programme and institution:
University of the Arts Utrecht, Netherlands

Name of respondent:
Thera Jonker
Managing Director Expertise Centre of Education; Dean of Master of Interdisciplinary Education in Arts; Chair Advisory Board of Higher Arts Education in the ‘Netherlands Association of Universities of Applied Science’; former Vice President of European League of Institutes of the Arts (ELIA).

Description and definition

1. How does your programme(s) foster student creativity, and how is creativity defined (if explicitly defined)?
2. How does your programme(s) foster students' critical thinking, and how is critical thinking defined (if explicitly defined)?

Creativity: “the conscious production of something new”

Making & Reflecting form the basis of higher arts education.

Development of Creative competence and of Research-Critical Reflective competence are at the core of the curriculum and are integrated in assignments.

Higher arts education has an individual approach. Each art discipline and each individual has his own path of talent development. Objective standards are rare.

Examples of pedagogical activities and assessments

3. Please give two concrete examples of pedagogical activity (or any other relevant information) that tries to develop your students' creativity and/or critical thinking.
OECD meeting on Fostering and Assessing Students’ Creativity and Critical Thinking in Higher Education

Project example:

- Interdisciplinary Project Education: interdisciplinary teams with students from different disciplines (design, art & technology, theatre, media, art & economics) work on new products and applications in a professional context with stakeholders.

Guidance example:

- Intensive dialogue between lecturer/student and among students directed on the students individual signature and next step in his/her work.

Course example:

- Courses in disciplinary and interdisciplinary creative processes, a mix between literature research and experimentation & observation in a lab situation.

Educational design example: Ludo-didactics: Education on the basis of game principles.

Education material examples:

- Use of canvases: Unpacking Creativity, Me and My Start up, Business Model canvas – http://www.creasummeracademy.eu
- The diamond of Creative Competence (tools for primary education)

4. Please give two concrete examples of assignments, exams or other form of assessment ((or any other relevant information) that you use (or could be used) to assess students' creativity and/or critical thinking.

- Final exam work in higher arts education: a new product
- Interdisciplinary Project Education: to produce a new product or application with a team
- Producing a short documentary to share research outcomes.

Typical for higher arts educational assessments is that:

- student ‘make’ something; process and product are both important to look at
- the work made can be ephemere (concert/performance)
- the work needs an audience or user to be complete
- the students’ knowledge and understanding can be seen in the product (for instance in the production of a collar made by the fashion designer, one can see the students’ understanding necessary to make the step from 2D to 3D)
- the reception of the work has a subjective element and often needs more assessors
- the form of the product is not always known at the beginning of the process
OECD meeting on Fostering and Assessing Students’ Creativity and Critical Thinking in Higher Education

- the level of the work has no objective standard

5. Does your institution/programme use a standardised test monitoring the acquisition of critical thinking and/or creativity? If yes, specify which one (or what it consists of if designed locally).

There are set competencies and assessment criteria but there are hardly standardized tests. Professors do not only look at whether students have completed their assignment, but also how the work is completed, how it demonstrates a) the students’ personal vision and artistic signature, b) the level of reflection on and research during the process, c) the possible effect or use of the work in relation to the students’ intentions d) the innovative contribution to the field, and, in case of teamwork d) the effectivity of the cooperation.

Progression

6. If you use a rubric or qualification framework of any kind to monitor students' level of performance in creativity and critical thinking, please report the levels below. (Please attach any document.)

For European tuning documents in higher arts education please see

http://www.elia-artschools.org/search?search=document