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- creative approaches
- design thinking
- experiential learning
- innovation
- transmedia and education
Transmedia, design and psychoeducational theories can be articulated to achieve transdisciplinary hybridisation for more meaningful learning. The main objective of this study is to show how methods intrinsic to design—its attributes as foreshadower and configurator—applied through dynamic transmedia are able to articulate the processes of teaching and learning. This case study was offered in a course to enhance creative approaches in executing innovative projects. The second major objective was to show students a deeper kind of learning through reflection (Design Thinking) and team participation and action (Learning by Doing). After the course, students considered the importance of group work to manage and apply creative approaches in the innovation context.

This article is divided into the following sections: 1) Introduction on how transmedia correlates with design and educational psychology disciplines, 2) Design as an agent involved in the creation and articulation of dynamics fostering the learning development, 3) The concept of transmedia in education as applicable to teaching and learning processes, and 4) A case study on creative enquiry to enhance the resolution of innovative challenges.
Introduction

On 9 February 2017 a specific session on Transmedia Storytelling took place at Universitat Pompeu Fabra in Barcelona. After the talk by Dr. Carlos Scolari, a round table discussion and debate took place involving, among others, Dr. Manel Jiménez, academic director of CLIK. He said that “90% of what has been researched around transmedia logic could be applied to the MOOC educational format”. From our field, in line with this statement, it is interesting to note how the transmedia concept can dovetail with the objectives of teaching and learning (T&L), driven by design processes. Teaching how to learn is an objective in the very DNA of the T&L process. To achieve this goal we aim to make sense of the development of individuals’ mental capacities, drawing a parallel with a scientific attitude. The criteria we will establish to achieve this attitude among participants in a training course are essentially defined by the dynamics conveyed in these 10 verbs: sharing, listening, talking, respecting, explaining, analysing, questioning, agreeing, proposing and valuing. Many of these are cited by Mercer in his analysis on collective thinking. Regarding psychoeducational guidance, we place the focus on a socio-cultural constructivist framework. We base our practical approach on some classroom activities, in a case study to which we apply experiential learning for participants to increase their mastery of creative skills and their capacities for training in innovation.

This article primarily focuses on examining the scenario around hybridisation which allows the interaction of two disciplines —design and educational psychology— with the transmedia system. In the illustration of the transmediality circle applied to an educational activity [Fig. 1] we can see how the learning activity is located at the core. Left and right vertices have to do with design —prefigurement and configuration— while top and bottom vertices have to do with the psychoeducational element—reflection and experience. The outer circumference shows transmedial interaction areas: instruments, media, channels and activities. If we take this scheme to a teaching unit we can articulate the contents around a transdisciplinary structure. In other words, the element to convey will no longer be a story —as is typical with transmedia narratives— but rather content, resulting in a concept we could call “Transmedia Contenttelling”. As can be seen, the format we have used to implement this scheme is a continuing education course in a formal context, for Generalitat de Catalunya innovation agents, who in turn will be trainers and will address innovation challenges in their respective departments.

Given this scenario, we aim to address a second issue we are interested in, which is the focus of teaching and learning activity based on joint experiential practice experience [2], which will take us to apply the concept of Zone of Proximal Development (ZPD). The ZDP initially proposed by Vygotsky and later re-visited by other authors, involves the difference in level of development that individuals can reach when they interact with others who are more expert, in contrast to the level of development they could achieve on their own. In the specific case at hand, to benefit from the interaction between individuals, dynamics and content we will rely on the transmedia system. When the time comes for co-creation we may pause to ask ourselves: what will we use to think collectively? Mercer gives us a reliable answer, describing language as the instrument that will allow us to carry out a joint social activity in order to create change. For this author, “Creative explosions [...] represent something more than fortuitous coincidences of individual talent” [1]. This highlights the importance of having a joint experience in which each participant is involved, creating “a spiral-shaped dynamic dialogue of mutually induced changes” [1].

We therefore want to reflect on what context learning takes place, what tools are used to convey it and what concepts we rely on to enhance creativity. Framed in such a manner, we see how by talking with others and with ourselves we develop the act of thinking, while multivocal language becomes the instrument for reflective dialogue. As a testament to creativity we present an experiential case study on creative approaches, where the maxim is that the trigger mechanism “is not in the light bulb, but in the switch”. This perspective stands in contrast to what we are led to believe, where the light bulb turns on “magically” without any mechanism that triggers ideas.

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1. Dr. Carlos Scolari, an expert in digital media, interfaces, communication ecology, etc., is author of several monographs on transmedia and lecturer at Universitat Pompeu Fabra. He gave a talk entitled “Investigating transmedia narratives” as part of the activity programme for the Master’s Degree in Social Communication.

2. CLIK: Center for Learning Innovation and Knowledge. https://www.upf.edu/cquid
Figura 1 “Transmedia Contenttelling” circle for a training activity.
Design as the articulating and managing agent for learning development

In relation to the specific development of the pragmatic element of design, we turn our attention to the Theory of Experience developed by philosopher John Dewey. From this perspective we position design as the driving force that triggers the work dynamics to educate from the common ground of reconstructing and reorganising personal experience [7], as opposed to instruction whose purpose is the learner’s mere reproduction of knowledge and passivity. We agree with Rom’s [8] assessment that design is a discipline that supports people’s planning and configuration capabilities. This is why it is ideal for supporting project-based activities, whose foundation we place in the pragmatic approach of Dewey and other authors following the precepts of Learning by Doing [7; 9; 10; 11], where the planning dimension involves reflection, ideation and inference processes.

This theoretical context serves as a benchmark for positioning design as an agent, activator and mediator in learning dynamics. Design-related activity establishes guidelines that can be exploited perfectly in learning-based teaching dynamics through manipulation, ideation and problem resolution [12]. Therefore, it seems appropriate to gravitate toward the theory that all design already includes processes for creative activity development, understood as the incubation and proposal of next-generation actions, devices or media products. The design process is duly conceptualised in terms of the following sequence: ideation or search for problems, outlining ideas, creating a product, reflection and revision [13].

Transmedia in the educational context

Learning processes follow personal paths where the story is individually constructed and no one can learn for someone else. César Coll accurately explains this concept, calling them “personal path constructs” [14]. This nomenclature implies that the activities we carry out, the contexts in which we participate, the use we make of our resources and those offered to us, the people with whom we interact, our interests and our past, present and future knowledge are totally personal and there cannot be two identical paths. Each perspective of the act of learning is different because each has its own identity based on beliefs, strategies and feelings [15]. Each student structures the individual learning process in a particular way and the teacher must be able to facilitate this from the genuine options allowed by each medium. Therefore, each activity in the classroom should be considered and designed intentionally to enhance learning. To meet this goal, the teacher must activate dynamics and rely on devices that serve as psychopedagogical tools [16]. We should note that students not only act as a passive audience but underscore their prosumer role as content producers-generators. Media and channels used by the teacher must be appropriately synchronised to ensure an appropriate T&L strategy where the student is a participating agent. In any case, we must bolster the power of learning, encouraging experimentation and what authors like Campo [17] have called “thinking with your hands”; i.e., to think while we act, developing concepts and solutions while manipulating material, both physical and digital artifacts.

At this point, we consider whether it is possible to extrapolate the transmedia concept to the discipline of education, a subject which Scolari and Ibrus regard as a good initiative, as another option when they state “we also need to investigate the value that transmedia practices generate, focusing not only on internationally differentiated particularities of value creation but also on value as a multidimensional notion that could be in-
terpreted by a variety of disciplines” [18]. From a more pedagogical standpoint, we initially find approaches to transmedia culture as participatory culture in studies by Henry Jenkins, who earlier in the 21st century wrote one of the most complete and interesting works on the issue, focusing on how digital technologies and new media are changing the way young people learn, play, socialise and participate in civic life. The study already sensed that the answers were vital to understand how schools had to develop to address the needs of the current and future generations, while also drawing attention to the need for increasing new media literacy. With regard to new media, Jenkins lists a very comprehensive range of social skills and cultural competencies currently available to young people—and those not so young—shared in the context of “participatory culture”. These skills occur in community—where there is a collaborative personal involvement—expanded in social networks. We find it interesting to list the 11 skills generated by contact with the new media: 

1) Play,
2) Performance,
3) Simulation,
4) Ownership
5) Multitasking,
6) Distributed cognition,
7) Collective intelligence,
8) Judgment
9) Transmedia navigation,
10) Networking and
11) Negotiation [19].

It seems obvious that if the transmedia natives have these skills, we must rely on them and encourage their application in educational development to create participatory citizens within their social and cultural context. We will transfer several of these skills to our course activity.

Goals

In this section we try to meet the expectations we set for ourselves when we designed the course in the context of an educational action combined with research:

• Develop group reflective capacity, using transmedia dynamics to address innovation challenges.

• Improve uptake in the learning process through experiential practice to subsequently convey what is learned, i.e., “learning to teach in order to teach to learn”.

Methodology

In this study we used a blended research methodology, integrating quantitative and qualitative methodologies. We chose this technique for complementarity reasons, whereby we have divided our activities into two distinct parts:

First, we conducted research/action based on a training course. The scientific research experimental technique used is participant observation, since both teachers who have taught the course are insiders 3. We also include an outsider researcher 4, co-author of this article, who delves into the analysis of the action and puts together the research.

Secondly, in order to obtain an assessment of the participants’ experience, a questionnaire was handed out to survey the subjective perception of changes experienced by individuals throughout the course.

Participants

The training course where we have conducted the study has been driven by InnoGent 5, a group which among other things certifies innovation agents in the government of Generalitat de Catalunya. The course was taught at the School of Public Administration of Catalonia, with the aim of training participants to lead and support internal innovation processes. This educational challenge was addressed through a process that will require them to act as intrapreneurs and as such, promoters of their own innovation projects. This course has been led by INDUCT 6, an innovation company; and the intervention in creativity and prototype phases have been dictated by the EUMO-DC 7 study and the CEO of Teaching Designers Alliance (TDA) 8.

The 25 participants, all civil servants, attended this training course as part of the performance of their duties, but voluntarily, for their own interest and driven by working on their innovation skills and implementing what they learn in their departments. That is why the course has required a non-probability sampling. The average age of participants was 45.6 years, and it seems interesting to point out that they came from various departments, such as territory, governance, education,

3. Researcher who shares the experience being studied.
4. Researcher external to the activity, in this case, the activity carried out in the course.
5. https://innogent.blog.gencat.cat/
culture, interior, economy and finance, health, justice, labour and social affairs, and held senior positions as trainers, deputies, managers, coordinators, technicians and managers.

Instruments

In order to check our expectations and complement the work carried out in the training course, we have developed a 10-question questionnaire to be answered voluntarily and anonymously, as detailed in the “Results” section. These 10 questions aim to evaluate various aspects related to the participants’ concerns, thoughts and emotions. The questionnaire includes 8 quantitative and 2 qualitative questions which we will discuss later.

Procedure

We have rolled out the programme in four phases over four mornings, two specifically dedicated to the development of the creative phase and another two to prototyping. Each class lasted four and a half hours (9:00 a.m.-1:30 p.m.). Participants were asked to perform activities during and after each session. With regard to activities in the classroom, each session began with the agenda and the resolution of questions from previous sessions. Then a “creative pill” was offered: a reduced-format resource, tool, proposal, idea or action related to creativity. Then the exercises proposed by the teachers in the basic 4-6 person group were offered. After this first activity, we took a 30-minute break for breakfast. At this time we proposed a “cre-active breakfast”, where each day a team of 2-3 people was designated to prepare the activity for the rest of the group. Since everyone had to prepare the activity sooner or later, all members wanted to show their skills in making culinary treats or special drinks. After the break the group work started again. The second major activity began with various proposals, further discussion, an exchange of views and opinions, and finally a discussion of the various proposals.

As for activities outside the classroom, each session included an individual work schedule that included several activities: develop options, based on self-reflection, regarding the problems addressed in the classroom, prepare the relevant material to perform subsequent sessions (working models or prototypes) and participate in a platform and a news channel where participants gave their opinion, contributed and interacted with contributions.

To conduct in-classroom sessions, teachers took three different approaches: as teachers, as advisors and as customers, in order to facilitate and make the most of group dynamics and educational activities. We acted as teachers when we gave guidance on activities to be carried out and we discussed certain issues as consultants when we guided their proposals, and as clients when we evaluated the results and exhibitions.

Before going on to describe the different sessions held, we would like to talk about the principle on which we based the first two sessions on creativity, a method that stems from the premise that “Creativity is not in the light bulb but in the switch.” This metaphor is the key to force and involve participants, as it claims that ideas do not come from a moment of enlightenment, understood as a kind of epiphany, but the process, skills and approaches, i.e. that creativity can be learned and developed following well-oriented guidelines. From this premise, we set up a dynamic that gets participants to question how to proceed creatively, breaking the mould of automatic thinking. This principle serves as the main focus throughout the entire process of creative search for innovation, including all stages: observation, ideation, evaluation and prototyping. Understood this way, the method is holistic in nature, as it addresses all parts of project development process, approaching it as a whole. It differs from other methods that rely solely on finding creative solutions in the ideation phase, neglecting the rest. This method is designed specifically to make participants step out of their “comfort zone”, these boundaries we set up for ourselves when we attempt to propose or solve a problem. With this method we seek to go against the flow, the inertia that usually drives us in a situation or issue that needs to be resolved. Disruption needs to occur, and this method aims to address new approaches from an interpersonal dialogue (in teams) and intrapersonal (individual) perspective. The psychological theory functioning as a driver of action is based on the constructivist approach. Specifically, we work through the language instrument to deploy co-creation conversations (inter-subjectively), initially with others and then with ourselves (intra-subjectively).
Method and Development

First session: Discover

At the beginning of the first session we presented the work scheme to be followed throughout the four sessions presented. This infographic tool works like a map and serves to guide our work at all times. This map sketches a specific design design process known as “double diamond” explored in Design Council [20], and divided into four distinct parts: discover, define, develop, and deliver. These four phases gave rise to working specifically on each of the 4 sessions.

Then the core teams proposed the specific challenge they had decided to work on. They had detected this problem after a few introductory sessions on what is a challenge and how it is identified. This was followed by other specific considerations about problem search, detection and diagnosis, and prioritisation of needs. These sessions prior to our intervention were led by INDUCT. Then they would also handle the phases for communicating, evaluating and writing the final report for the activity.

In order for participants to assimilate the “creative switches” method, a fun activity was set up as an ice breaker prior to addressing the serious challenges. The issue we raised was: What can we do if on the wedding day the wedding dress is not ready in time for the ceremony?

We attempted to solve the issue creatively with the aid of some artifacts we made in the shape of cubes, based on the creative approach proposed by Roger von Oech [21]. The cubes thus became an adapted three-dimensional device which could be manipulated. It consisted of six elements, one for each side—an image, a slogan, an explanation, some questions, a random number and a colour code—for placing it in the right creative process stage: observe, develop, evaluate or prototype. In total we had eight different cubes for each phase, resulting in a total of 32 creative switches.

This was the most important moment of the course, when the core groups focused specifically on the great challenge that had been proposed using other different cubes but following the same dynamics. At the end of this first session, four new cubes were handed out randomly to each participant, one for each of the 4 phases of the creative approach, for them to take him home and reflect on individually.
Second session: Define
We start out the activity inviting each participant to share their findings to the core team, explaining the various approaches taken personally. Based on these individual projects, the various teams had to agree and select the three best ideas. The various teams presented their proposals in public.

Third session: Experiment
The homework assignment prior to this session was to develop a working model by teams. We understand that the model has a dual function. It has “mouth and ears”, as it were, since it speaks and listens to us. A kind of dialogue is established between the artifact, our own opinions and those of other team members. From the model we move on to the prototype, which is a more elaborate stage involving support for idea execution, prior to creating the final product. To carry out this step, teams had at their disposal a list of different resources that they could use as a guide for the final prototype: computer graphics, video, 3D object-model, dramatisation, interviews, event, stop motion, etc.

Fourth session: Evaluate
Each team had to develop the prototype at home with the final finishes. Once back in the classroom, core teams presented their prototypes to the class. However, an unconventional presentation was involved because they introduced a dynamic based on De Bono Six Thinking Hats role play. This type of presentation involves that while a team shows their product, the other teams and teachers assume a role of “customer types”, playing one of these 4 profiles: friend, scatterbrain, problem-raiser and know-it-all. Once team 1 presented the prototype, there is an intervention from each of the remaining four teams, who adopt one of the four role profiles, acting from their specific standpoint. The “friend” should contribute something positive in addition to those already mentioned in the presentation. The “scatterbrain” pretends to not “get it” and mentions something unrelated detected during the presentation. The “problem-raiser” criticises the proposal from an entrenched position. And the “know-it-all” tells you how he would have solved it even better. Once all four roles speak up, the team presenting their product has a chance to reply. The teams take turns in the various roles.

As a summary of what appears active in the classroom and the factors involved in the activity we carried out we see the following chart [Fig. 2], the paradigm of the T&L process. Here we establish a series of simultaneous interrelationships among various fields of knowledge, communication systems, disciplines, use of technologies and among the participants themselves. This cluster of factors that students bring to class and find in class activate each other at the pace of what we have wanted to define as a transcontextual, multi-channel structure.

Results
To wrap up the course, we handed out an evaluation questionnaire. Sixteen participants answered individually, voluntarily and anonymously. The survey results have helped us analyse various aspects relating to their emotions, perceptions, thoughts and ideas, during and at the end of the course.

The questionnaire lists eight open qualitative questions, and the results were as follows:

1) What encouraged you to take this course?
The key interest of participants was learning to carry out more creative processes in their jobs (mentioned nine times) followed by an interest in acquiring tools to make intervention adjustments (five) and interest in learning a new working methodology (four). There was also a comment about interest in collaborating and another participant who did not mention any special interest. It should be noted that in this question participants had the opportunity to give more than one answer.

2) What part of the course have you liked the most?
Responses included alternative methods of thinking (mentioned seven times), followed by the different methods used during the course (four) and teamwork (three). Two of the participants did not answer this question.

3) What did you not expect to find in this course and you did find?
We found two predominant types of responses. Most of them focus on the importance of teamwork within the course (seven) and the approach used for the course.

4) What have you missed in this course?
Again we saw an even split between the seven responses. Four comments mentioned the need for additional information on the methodology used in the various sessions and three comments mentioned the need for examples that could help participants transfer the contents discussed to real-life situations.
5) What positive and negative emotions did this course make you feel?
Participants chose up to 14 positive emotions, including fun (six votes) followed by companionship, freedom, curiosity and happiness, among others. In contrast, four negative adjectives were mentioned: ridiculous, pressure, loss of time and fear.

6) What idea/belief did you have of the subjects dealt with which now you have questioned or reformulated?
Seven of the participants did not answer this question. Another participant replied with an answer that did not fit the question. The other answers stressed that creativity is learned (three responses) and other individual responses involved the concept of innovation, change of focus and the importance of the process.

7) Do you think you could apply what you learned in the course to your job?
Thirteen participants commented that they would feel capable, and two participants answered that they would feel capable but still did not know how, and one participant who said he would feel capable but with some difficulties.

8) Write down three keywords that summarise your experience in this course.
Answers were mixed with nine mentions of teamwork and six mentions of play and creativity. One participant did not answer this question [Table 1].

In addition to these open questions, our questionnaire included two closed questions and a dual-choice question:

9) What kind of work do you prefer: teamwork or individual?
Nine participants chose teamwork, followed by seven participants who chose a combination of the two (although that was not one of the options). No participant opted solely for individual work.

Finally, question 10 uses a numerical rating scale with which we wanted to see the impact on our students of their participation in the course and to what extent they considered their creativity to have increased [Table 2].
The pre-course scores are shown in blue and post-course scores are shown in orange. It is worth noting that all participants have perceived an increase in their creativity. The largest difference between pre-course and post-course scores was four points and the smallest different was one. One participant did not answer this question.
By way of evaluation, we can see a number of issues: a) There is a contrast between question 1 on the interest to collaborate (which only received one response showing interest in collaborating) and questions 3 and 8 [Table 1] where teamwork ranks as the highest answer; b) Responses to question 4 on the need for documentation material led us to deliver to participants, a week later, a reference manual on how we had carried out all processes; c) The lack of consensual answers for question 6 makes us think that the question was not asked properly, which makes us reflect, in view of future experiences, on how to formulate this question more effectively; d) when calculating a quantitative percentage of answers to question 10, we observe that participants felt very creative, with an average increase of 38%. That said, it must be clarified that they were told that creativity in this case is what would be applied to the context of the work activity, as innovation agents, and perhaps not as much in other areas of life.

The data collected with this survey, although very positive, give us an overview and will help us develop future courses with some changes, as a result of participant observations and the thoughtful analysis of teachers and course organizers.

**Discussion**

Although we would have to wait and see if they actually take this change in creativity to their workplace (which will be verified in 6 months by a delayed interview) it is interesting to note how currently the perception of increased creativity in the workplace was boosted for all participants.

We are aware that optimisation of results will depend largely on how many times we can repeat the experience and get a deeper analysis of results, considering there will always be constraints related to subject matter, venue and profile and number of participants. This activity is not translatable as is to any other context.

Regarding the skills displayed by the native new media generations, we discovered that many of the 11 skills that we have introduced in the context of formal education in achieving our course —specifically 1, 2, 3, 7 and 11— were fully utilised during training development, and 6, 8 and 10 were used circumstantially. The reader may compare them in the “transmedia in educational content” section.

If we carefully observe the elements that have drawn our attention as trainers and the outside researcher, we agree that the participants were an exceptional group for their high development in learning competence and their willingness to use and share their extracurricular skills. One of the comments we were most impressed with was a reply to the three keywords defining the course, where a participant summed up their experience concisely and expressively: 1) unlearning; ooOh!, 2) abandoning automatic thinking; Aahh!, and 3) playing: Hahaha. This is proof of the impact the course for this particular person. It was interesting to see how they had internalised the activities and experience.

With regard to elements that can be projected based on this activity, we have to stress that it will open windows so we can notice more rigorously the problem we have to address to relate the theoretical analysis with experience in educational activities.

The students, the T&L processes and the sociocultural context are constantly changing, which drives us to continue working to provide guidance to those trying to keep learning and in turn developing their teaching skills. The breakfast preparation activity was an incentive that kept people's minds active, even those who considered themselves less creative. The evidence is that each contribution was highly valued by all participants, although we must assume that this activity took place in a context of informal education, beyond trainers’ control. This fact has made us reflect on how to focus our experiences in upcoming courses, including more consciously the set of identity elements representing learners' interests, goals, needs, abilities and motivations.

**Conclusions**

Transferring transmedia dynamics to the classroom involves organising diversified and coordinated activity contents, leveraging teamwork and collaboration of all participants, who promote their own learning from the standpoint of joint productive activity. Transmedia thus appears as a system to interconnect activities, tools, media and channels to engage the learner in the T&L process. For this reason we have coined the term “Transmedia Contenttelling” in the educational setting.

As noted in the surveys, training course participants positively value having developed their group reflective and creative capacity. This course has managed to make participants feel like they have expanded their capabilities as trainers in future innovation courses taught in their departments. Likewise, it has made them re-consider their beliefs and preconceptions, questioning them and re-balancing them with the newly-acquired information. It is a journey that begins from the outside, through interactions with others in community (inter-subjective) and arriving in one's own mind (intra-sub-
jective), guided by the principle that we learn more with others than we would alone. Thanks to learning in community, as we have seen in this course, we reach greater heights than we could independently and individually.

We have referred to the act of co-creation to define an activity carried out by a group of people that explore together how to solve problems when we should call this “creativising”. We will leave the subject open to further pursuits.

We can affirm, in closing, the following maxim: the contents change and disciplines evolve so people can be in constant development. Interdisciplinary interaction and the effects of transmedia strategies in teaching and learning help generate more attractive and proactive dynamics which participants latch onto to amplify and generate new voices.

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References


