Using framing to foster creativity in learning: Reflective tool to analyze and discuss practice

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Several models have been devised in Iceland in recent years to analyze emerging pedagogies in practice. In this article we present a model that was developed and tested in research on innovation and entrepreneurial education in 2011 and subsequently applied in two participatory action research (PAR) projects with teachers in Iceland both focusing on creativity. The model draws on sociological concepts from Basil Bernstein's theories, such as "framing and classification" and "power and control" in school settings. Through multiple iterations, the model was converted into a practical analytical tool. The tool helps to reveal the range of elements that teachers can control or give students agency by applying different strengths of framing. When breaking down the elements we found that concepts such as freedom versus control can help to identify how these elements emerge and are applied in school practice and how they can support or hinder creativity. Working in the two PARs with subject teachers on four different school levels, we found out how the teachers used the tool to support their understanding of how to cultivate creativity in their students' learning. We found that the tool is useful for teachers at any school level and in any subject to identify and understand which elements they control in teaching and learning processes and how they can support students' creativity.

KEYWORDS

creativity, innovation and entrepreneurial education, entrepreneurship education, innovation education, participatory action research (PAR), framing, classification

Introduction

Creativity, innovation, and entrepreneurship have gained increased attention in recent decades as important competences in the modern world (Craft, 2000; Jónsdóttir and Gunnarsdóttir, 2017; Lilischkis et al., 2021). Creativity and innovation are not only important for constructive economic development but also to find solutions to social issues and environmental challenges (Weicht et al., 2020; Jónsson and Macdonald, 2021). UNESCO's report (UNESCO, 2021) on the future of education acknowledges the

power of education to bring about transformative change in the world, which requires both creativity and intelligence. Cross-curricular competencies such as problem-solving skills, creativity and curiosity are increasingly acknowledged as important for learners (OECD, 2020). Innovation and *action competence* are abilities that are important when dealing with the challenges of sustainable development (Pálsdóttir, 2014; Jónsdóttir and Gunnarsdóttir, 2017; Weicht et al., 2020). We use the definition of innovation as the generation, acceptance and implementation of new ideas, processes, products, or services (Shavinina and Seeratan, 2003). Action competence is the competence required for taking action, requiring willingness, knowledge, skills, and trust in one's influencing possibilities (Sass et al., 2020).

Innovation criteria and action competence have been taken up by many countries in Europe, but aspects of it have also often been misunderstood and how to deliver them in educational practice. To understand and analyze the pedagogy, the elements and nuances of how teachers work with students on inculcating these competences, we turn to Basil Bernstein's (2000) theories. Bernstein's central preoccupation is language, but not language as we know it day-to-day. For Bernstein, language is built on codes, criteria, and models. These in turn generate modalities of control based on rules, which themselves give rise to consequences and then function as hypotheses.

The research projects we describe were conducted in Iceland. A new version of the National Curriculum in Iceland was introduced in 2011. It includes a section on the visual and technical arts which has been translated into English and presents creativity as one of six fundamental concerns in the very much revised curriculum (Ministry of Education, Science and Culture, 2014). Guidance booklets were published to introduce the main policy for school curricula and make them accessible to most teachers. The many consequences of the new policy were brought to the attention of teachers and parents around the country in official booklets and ministerial documents, and similar booklets were produced for all the school subjects. Even so, it has been challenging for teachers to teach creativity to their students.

The purpose of this article is to show the utility of a model built on some of Bernstein's (2000) concepts, that teachers at any school level can use to identify which elements they control in teaching and learning processes and recognize how they can support students' creativity. The aim is, first to show how the model was initially developed and converted into a practical tool used to analyze pedagogy in innovation and entrepreneurial education and secondly how it was later used in two PAR projects to support student creativity.

In the next section we first present the background, relevant theories, and key concepts underlying this article. In section "Developing the model into a tool and using it in different educational contexts" we give an overview of the research behind the model and in section "Developing a model to analyze

creative pedagogy – The IEE research" how the model was developed as an analytical tool for curriculum in research on innovation education. We then describe in section "Further development and use of the model – Traditional subjects" how the tool was used later, in one PAR project with teachers working with traditional subjects. In section "Arts and crafts teachers using the analytical tool," we show how the tool was used in another PAR with technical, arts, and crafts teachers. These analytical exercises and descriptions allowed us to explore the nature and practice of pedagogy and the ways in which some of Bernstein's (2000) concepts challenge us to deepen our understanding. Finally, we discuss the main points presented in this article.

Background and influential theories

In this chapter we present the background for the design of the model and supporting theoretical foundations. First, we briefly discuss how we understand creativity and change in education and entrepreneurship education as a learning area that includes creativity and action competence.

Creativity and change

While creativity is a concept commonly used, it is nevertheless elusive, complex, and difficult to define. Creativity has been defined as "... a process of developing and expressing novel ideas for solving problems or satisfying needs" (Harvard Business Essentials, 2003, p. 82). Creativity is also defined as reasoning that produces imaginative new ideas and that creativity is an individual process, relating facts or ideas in new relationship and is discontinuous and divergent (Maravilhas and Martins, 2018). Craft (2000) identified possibility thinking as the core of creativity and that insight is a part of creativity. To harness creativity requires having "agency," defined as the control individuals have over their actions and lives that enables them to "actualize" their choices (Craft, 2000). Creativity is about applying "agency," the ability and capacity to act and work in order to come up with ideas or products that are original and innovative in their context (Jeffrey, 2005). However, creativity has also been described in relatively simple terms which we adopt here: creativity is the ability to flexibly produce work that is novel, high in quality, and useful (Sternberg and Lubart, 1999; Sternberg et al., 2003; Runco and Jaeger, 2012).

The importance of creativity and innovative competencies in modern societies has been increasingly acknowledged in recent decades, emerging as aims in many curricula internationally. In the Icelandic curriculum for compulsory schools (Ministry of Education, Science and Culture, 2014) creativity is said to involve "forming tasks and communicating

them, to make something, make something new or different from what the individual knows or has done before" (pg. 22). Implementing creativity in formal education makes demands on teachers, as they are key players in designing opportunities for learners to develop such skills. Classroom contexts matter and external pressures can limit student creativity (Tan et al., 2016). It can be challenging for teachers to apply the kinds of approaches that support learner creativity (Lin, 2014; Jónsdóttir, 2017). Creative work often involves risks and failures. To make students comfortable with open ended and ambiguous tasks, teachers need to be proactive in supporting them to self-regulate and be reflexive (Henriksen et al., 2021; Jónsdóttir and Guðjónsdóttir, 2021). Teachers need to be aware of the tendency to take conservative approaches when making changes in their teaching, especially if they intend to support creativity in student learning and go beyond rote learning (Leroy and Romero, 2021). A recent systematic review reveals certain features that are characteristic of creative pedagogical practice: generating and exploring ideas; encouraging autonomy and agency; playfulness; problem-solving; risk-taking; co-constructing and collaborating; and teacher creativity (Cremin and Chappell, 2021). The findings also indicate that documenting the complexities creative pedagogical practices is challenging. The authors recommend that practitioners join researchers as co-participants, to enable a more nuanced examination of the impact of creative pedagogies on student creativity (Cremin and Chappell, 2021). Such joint efforts can be seen in participatory action research (PAR) where researchers and practitioners work together in doing research. PAR can be an empowering way to deepen understanding of issues in education and directly influence practice. PAR offers a framework for generating knowledge centered on the belief that those who are most impacted by research should be leading in framing the questions, methods, and analysis (Torre and Fine, 2006).

Entrepreneurship education

Entrepreneurship education [In Iceland referred to as Innovation and Entrepreneurial Education (IEE)] is one area of teaching and learning that has offered valuable opportunities to foster and enhance creativity and competence for action (Jónsdóttir and Macdonald, 2013, 2019; Seikkula-Leino et al., 2021). A broad view of entrepreneurship education (EE) has been developed such that EE is not just about starting a new business, but about enhancing two of the core elements of such education: action competence and creativity. Creativity is a competence that is at the core of EE, as it is very much about problem-solving and action (Jónsdóttir and Gunnarsdóttir, 2017). EE is relevant for all levels of education, from kindergarten, through primary and secondary school, to vocational, higher and professional education (Lilischkis et al., 2021). We see EE as providing affordances that can be used

in different educational contexts to inculcate creativity and action competence.

The EntreComp report from the European Commission is meant to support the assessment and evaluation of the goals of EE. The report presents EE as learning framed around three overarching areas of competences: (1) *Ideas and opportunities* (including creativity), (2) *resources* (realizing what is needed), and (3) *into action* (getting things done) (Bacigalupo et al., 2016). Entrepreneurship education has been seen as a way to unleash human potential to tackle complex societal, economic, and environmental challenges (Lilischkis et al., 2021). It seems that the overall aims of EE are in line with what is needed to change education so it can empower learners to tackle challenges that sustainability education needs (Weicht and Jónsdóttir, 2021). Jónsson and Macdonald (2021) conclude that in order to develop practices that could support sustainability, the focus in education needs to shift from *what* to teach, to *how* to teach. Such a shift requires teachers to be aware of how they teach and to be ready to analyze different activities.

Developing the model into a tool and using it in different educational contexts

In the following sections we present how the model was developed and used (Developing and using a model to analyze creative pedagogy), how it was further developed and used in a two year PAR with teachers teaching traditional subjects (Further development and use of the model) and finally an example from a 2 year PAR with teachers teaching arts and crafts (Arts and crafts teachers using the tool) (see Table 1). We want to show with these cases how this model works and share examples of its use. Table 1 shows an overview of the researches behind the making of the model and how it was applied – and the role of each research for this article.

Developing a model to analyze creative pedagogy – The IEE research

The first study of the three, is a study where the model was first developed and used. This was a research project on the pedagogy of 13 IEE teachers, in which an analytical model was designed to code, interpret and record the interactions between teachers and students and among students in the classroom. Criteria based on Bernstein's (2000) concepts of classification and framing enabled identifying the characteristics of the pedagogy the teachers applied working with IEE focusing on how they supported student creativity and action competence.

TABLE 1   The three research projects presented in the article.

Title of research	Description – role in article	Publications (different foci than in this article)
Section "Developing a model to analyze creative pedagogy – The IEE research." The location of innovation education in Icelandic compulsory schools, *2006–2009*	This study examined examples of IEE in compulsory schools in Iceland. The research built on qualitative case studies to determine how teachers were supported in developing IEE. Observations, interviews with teachers, principals and learners and school curricula and official texts were analyzed. Additionally, interviews were taken with seven teachers from other schools. Role in the article: To explain how the model was created and explain the data and the theories it is built on.	Jónsdóttir, 2011; Jónsdóttir and Macdonald, 2013; Jónsdóttir and Gunnarsdóttir, 2017
Section "Further development and use of the model – Traditional subjects." Action research by eight teachers in traditional subjects, on four school levels, *2013–2015*	An action research of eight teachers on four school levels aiming to understand and identify how they enchance the creative capacities of their students. The participants were one pre-school two secondary, two upper-secondary, and three university teachers. Role in the article: To show and explain the development of the model and an example of its use	Jónsdóttir, 2017
Section "Arts and crafts teachers using the analytical tool." Action research of arts and vocational teachers at three school levels, *2016–2018*	An action research project focusing on creativity in teaching and learning. Participants were eight arts and vocational teachers at three school levels. The teachers were three arts teachers, two textile teachers, two IT and vocational subjects (in Icelandic, *verkgreinar*) teachers, and one drama teacher. Role in the article: To show an example of the use of the model for teachers	"How can the 'state bear become a quaint artifact' Arts and vocational teachers at three school levels share narratives from their action research" [in Icelandic, long abstract in English] Jónsdóttir and Guðjónsdóttir, 2021

Adopting and adapting Bernstein's concepts

To understand how Bernstein's theories were used to lay the foundation for our model we explain here which of his concepts we used. Bernstein (2000) examined a series of rules internal to pedagogy and identified how these rules affect the knowledge chosen to be transmitted, as well as how those rules select those who can successfully acquire knowledge. Bernstein's conceptual framework offers ways to recognize how knowledge is distributed and how it changes as it is recontextualized from one field into another. Bernstein introduced two concepts, classification and framing, that are important for this study. Classification and framing explain power and power relations and the forms they take in the control of relationships. *Classification* is a concept to categorize the construction of a social space; e.g., by school subjects or by roles such as teachers vs. learners and home vs. school (Bernstein, 2000). *Power* is fixed within a classified category, which can be strongly or weakly classified. The power of a school subject is reflected in the amount of time it is allocated and the space it gets in the curriculum. *Control* describes the establishment of legitimate forms of communication that are appropriate to different categories, such as who controls communication in the classroom and what forms are proper. This is important as supporting student creativity requires teachers to relinquish control in order to give students freedom and agency, which is often the opposite of traditional teaching (Jónsdóttir, 2017).

Framing refers to where control is located within a social context. Strong framing is when the transmitter has explicit control; in weak framing, the acquirer has more control (Bernstein, 2000). Strong framing indicates that control is located in a category that has power – for example, a teacher's traditional role – whereas weak framing indicates that control is shared between categories, for example, between a teacher and a learner or among curricular subjects (Macdonald and Jóhannsdóttir, 2006). Framing regulates relations within a social context, referring to the relationship between transmitters and acquirers (Bernstein, 2000, p. 12). Framing is about who decides the location of work (in the classroom, the hallway, or outside; at school, at home, virtually, or out in nature), time restrictions, or social and emotional communication (unequal or equal roles; strict or relaxed communication) (Jónsdóttir, 2017).

Criteria using these concepts were developed into an analytical model to identify control in the classroom and how much freedom and agency learners were allocated in the research on the 13 IEE teachers' practice. Bernstein's theories are sensitive to context and can thus be applied in different settings to reveal how and where respect, power and responsibility are located in social interactions (Jónsdóttir, 2011). Curricular processes and the social interaction of teachers and learners in IEE have shown that supporting learner creativity needs a balance between *freedom* and *structure*. Applying the criteria in the model and using Bernstein's concepts of classification and framing revealed three modes of pedagogy present among teachers working with IEE:

- *controlled*, where very strong framing is applied;
- *progressive*, where students have some control; and
- *emancipatory*, where students have ample agency and freedom to be creative and active and often are on equal footing with the teachers as they develop their own ideas (Jónsdóttir, 2011; Jónsdóttir and Gunnarsdóttir, 2017).

The teachers displayed different strengths of framing in IEE lessons, with an inherent tendency toward strong framing. From the data we designed a table with descriptors to identify different strengths of framing and classification. Bernstein's (2000) approach to coding the behavior and language of teachers and students enabled us as researchers to break down the interactions between the parties involved in order to form units that were the smallest category defined by Bernstein. Thus we created an analytical tool built on Bernstein's concepts and on the data from the IEE research (Table 2) to identify framing of interactions in the classroom and classification of power. Table 2 shows the elements using Bernstein's indicators, with some of them divided up in more detail than Bernstein did. The table shows explicatory texts that indicate who controls which elements and in what way.

Further development and use of the model – Traditional subjects

This example is from a PAR of eight teachers at four schools who collaborated in studying their own teaching to identify and analyze how they went about supporting their students' creativity (some findings in Jónsdóttir, 2017). The teachers taught traditional subjects – Icelandic and mathematics – and included a pre-school teacher and three university lecturers. The study was led by the first author; the group met once a month for 2 years (2013–2015) to share data and discuss and analyze the teachers' experiences.

Developing the model into an analytical tool

Using the framework from Table 2, the analytical tool *Who is in control?* was developed (Figure 1). It has empty spaces to fill in where teachers or researchers identify the strength of framing in teaching and learning that is to be scrutinized. One of the exercises of the teacher group was to apply the tool to examples of their own teaching, to help them become aware of power relations in the classroom. Bernstein's theories can help to identify and understand different forces that are at work and that are not visible until they are recognized and analyzed. The tool can help to identify different elements that can be controlled by the

teacher or the learner, or that can be negotiated between them. By looking at different elements of teaching and learning in the classroom, the teachers could identify who had power over each part.

The first element in the tool is *knowledge*, which can be a curricular subject, specific content, and/or a specific theme. Specific knowledge can comprise various topics and tasks. This was just one element with Bernstein but we found it important to split it up. We broke knowledge up into sub-elements such as themes and tasks. An important part of learning and creating is the *development of ideas* – who has a say in how they pan out and in what direction and can be a part of the student's knowledge creation. Is the teacher the specialist in the development of the student's creative idea, or is it actually the student who is the specialist, as is emphasized in IEE pedagogy (Jónsdóttir, 2011)? *Methods* of working in the classroom can differ. They can be fully controlled by the teacher (very strong framing) or the learner (very weak framing), but may fall somewhere between these two extremes. *Pacing* denotes how quickly work is finished in the classroom – another issue that can influence the creative process. The *sequence* of how to do processes in creative work also impacts outcomes – e.g., can the student decide what to work on first, and then move on to another part as they wish? Or does the teacher decide that students must start with a certain part, move on to the next, and end with a specific one? The *communication* in the classroom can be informal, with students and teachers interacting like colleagues – or it can be strictly formal, where the teacher is in total control and learners ask for permission to speak, stand up, or talk to each other (very strong framing)? Related to communication is the *location* of work – where can the learner work on tasks? Can they decide to sit on the floor, or work in the hallway? Or is location strictly determined by the teacher – e.g., students must sit at their own desks (strong framing)? Who chooses which *materials* to work with on tasks is also an issue that can restrict or support creativity? *Evaluation* of the schoolwork is important, but traditional knowledge assessment methods are not well-suited to creative work. It is interesting to find out how teachers go about evaluating learner creativity and whether the learners are included in that process.

Using the analytical tool

Well into the second year of study two, the PAR with the teachers in traditional subjects they used the tool to analyze their own teaching and scrutinize who had control in the classroom. This helped them understand how that framing influenced learners' autonomy and creativity. I (the first author) explained the tool (in the form of a table) and they each got an empty table (Who is in control? Figure 2) to mark their analysis of each of the elements in the table. The analysis helped to

TABLE 2 Developing the framing model.

Elements of lessons	Strong framing - teacher control		Weak framing – learner control	
Knowledge – content and themes	The teacher decides what is to be learned, content, themes, or issues to handle in the lessons with one set focus.	The teacher offers specific content, themes, or issues but accepts/allows learners' ideas to enrich the main focus.	The focus of the content is greatly influenced by learners' ideas and suggestions.	The focus and content of the theme or issue is set and developed around learners' ideas.
Topics	The teacher selects which topics to address.	The teacher offers a limited range of topics to address.	The learners suggest several topics and learners select which they want to address conferring with teacher.	The learner selects which topics to address.
Tasks – topics	The teacher selects tasks such as "make a 3D cube."	The teacher offers a limited range of tasks and learners select from those. Learners choose how to develop them.	Learners suggest several tasks, the teacher offers a range of them, and learners select from those options.	The learner selects the task independently.
Direction of developing ideas	The teacher makes decisions in developing solutions.	The teacher suggests choices in development of ideas or influences learner choice.	The learner develops their idea with the teacher's support; the learner makes final choices.	The learner controls the development of their ideas, and the teacher provides support.
Direction of developing ideas	The teacher makes decisions in developing solutions.	The teacher suggests choices in development of ideas or influences learner choice.	The learner develops their idea with the teacher's support; the learner makes final choices.	The learner controls the development of their ideas, and the teacher provides support.
Methods	The teacher decides the method.	The teacher offers a limited range of methods.	The teacher and learners come up with a collection of methods and choose from them.	The learner selects the method independently.
Pacing	The teacher decides when each task is to be finished.	The teacher sets an overall time frame for when projects are to be finished.	The learner chooses their pace within a set but flexible time frame.	The learner sets the time frame and the pace of work.
Sequence	The teacher has a set sequence of tasks within projects or themes.	The teacher has a set sequence of some parts of projects or processes.	Learners can do some alterations to sequence of tasks or processes.	Learners can have any sequence of tasks that fits their object/goal.
Communication	The teacher controls all communication; learners ask permission to speak.	The teacher controls some of the communication; learners ask permission to speak to the teacher.	The teacher and learners freely communicate (atmosphere of a workshop); learners speak together.	Learners and teachers freely communicate and take on each other's roles; learners speak together and help each other.
Location of work	Location of work is fixed throughout the lesson as predetermined by the teacher.	Location of work is different according to different tasks – choices offered by teacher.	Location of work is negotiated between learner and teacher.	The learner selects location of work.
Materials	The choice of materials is decided by the teacher.	The teacher offers a limited range of materials to choose from.	Learners have a wide range of materials to choose from.	Learners may procure and use specific materials.
Evaluation	The teacher uses guidelines and criteria for evaluating learner achievements that are mainly built on the national curriculum.	The teacher offers guidelines and criteria for what is going to be formally evaluated and makes these explicit.	Goals and criteria for evaluation are negotiated between learner and teacher.	The learner sets goals and criteria for evaluation.
Roles	Learners have very limited agency and are receivers. The teacher is the specialist who transmits knowledge. The control in lessons is distinctly with the teacher.	The teacher controls most aspects of lessons and is the specialist. Learners have agency within certain well-defined areas.	Learners have agency in defined areas and are aspiring innovators and creators.	Learners have ample agency and are innovative, i.e., creative, and active. Learner and teacher roles are often flipped – learners become experts, and teachers learners.

identify in detail the kinds of learning spaces or opportunities for creative work the teachers had designed for their students (see Jónsdóttir, 2017). The findings indicated that the teachers became more aware of the opportunities for creativity they were offering their students in lessons and showed that the tool had helped them focus on when and how they offered learners control and agency over their creativity in their learning processes. The tool was thus one element in the research that helped them to analyze their own teaching and the opportunities for student creativity.

Arts and crafts teachers using the analytical tool

The third example we share is from a 2 year PAR of arts and crafts teachers. Arts and crafts teachers are expected to promote and cultivate creativity. It is expected that other educators can learn from their expertise to enhance creativity in their learners. In 2016–2018 eight technical, arts- and crafts teachers on three school levels (compulsory-, upper secondary- and university level) took part in a PAR lead by the first author focusing on how

Selection /control over Framing:	Teacher always + + very strong	Teacher considerably + strong	Student considerably - weak	Student always - - very weak
Knowledge – content and themes				
Topics				
Tasks				
Development of ideas				
Methods - approach				
Pacing				
Sequence				
Communication				
Location of work				
Materials				
Evaluation				
	Receiver/obedient/dependent ←		Creative/free / independent →	

FIGURE 1

The framing model as an analytical tool. Who is in control (Developed from Jónsdóttir, 2011).

they went about supporting learner creativity (study three). Of the five teaching at the compulsory level (5–16 years old), two were textile teachers, two taught information technology and crafts, and one visual arts. Two more teachers taught visual arts at the upper-secondary level, and one taught drama in teacher education. The data were analyzed in collaboration with the teachers and the research published with the support of a critical friend who also participated in certain aspects of the research process. The paper was published in Icelandic with an extended abstract in English covering the methods and main findings (Jónsdóttir and Guðjónsdóttir, 2021).

The teachers gathered different data about their teaching, keeping a journal on how they worked with students, focusing on creativity. They also gathered lesson plans and students' artifacts and work. Collaborative reflection meetings with the group were held once a month. At these meetings members of the group shared stories from the classroom and discussed challenges, issues, and benefits of arts and crafts education and how it worked in practice. The teachers interviewed one another to shed light on what kind of teachers they wanted to be. They also made collages to describe their professional working theories and interpreted them orally. Furthermore, they did an analytical exercise on a chosen part of their teaching using the framing tool "Who is in control?," where they identified what level of control they applied in their teaching.

Three examples from that exercise are presented here that have not been published before. The real names of the teachers are used with permission, as in other publications from this PAR.

Example from a textile teacher

All the teachers in the arts and crafts PAR used the framing tool to analyze a specific part of their teaching. The patterns of their entries into the framing table show how their students had influence on different elements of their learning. The teachers all explained their results using the tool. We present an example here from one of the textile teachers.

Erla Dís was a textile teacher with a master's degree and had only been teaching for 3 years. She was very ambitious in her teaching and found it helpful in a demanding job to keep a detailed journal about her teaching. Using the framing tool, she provided an example from her teaching about patterns and printing with a mixed age group of students in grade 8, 9, and 10 (14, 15, and 16 years old) (Figure 2).

Erla Dís felt that she sometimes had to locate the marks near the vertical lines in the tool (see Figure 2) or even on a line to indicate that it was not always either/or. Sometimes she chose to make two marks in the same line to indicate

Selection /control over Framing:	Teacher always + + very strong	Teacher considerably + strong	Student considerably - weak	Student always - - very weak
Knowledge – content and themes	▶			
Tasks - topics	▶			
Methods		▶		
Development of ideas			▶	
Methods - approach				▶
Pacing				▶
Sequence	▶			
Communication		▶		◀
Location of work		▶	◀	
Materials			▶	
Evaluation		▶	◀	

Receiver/obedient/dependent ⟷ Creative/free / independent

FIGURE 2

Erla Dís – example – Teaching textiles: patterns and prints.

that sometimes she had a say and sometimes the student, depending on the negotiation between her and the students. The project she used as the unit of analysis is rather extensive and is the only one the students work on in this module. The module spans 10 weeks and students attend classes for 80 min each week. Erla Dís explained the lessons she analyzed in writing using the framing tool, and referenced framing in discussions during the research group meetings. The introduction to the module started with a general presentation on pattern-making followed by textile prints and basic methods for printing patterns. The knowledge or theme of learning is thus decided by the teacher (very strong). She described the process:

> The part of patternmaking started with a short fieldtrip around the area near the school. During the fieldtrip the students are encouraged to scrutinize the environment and take note of details. I ask them to look up, look down and find forms and even patterns. Each student took five photographs during the trip.

On their return from the fieldtrip, Erla Dís gave a presentation with slides about pattern making. She presented work of known designers and designer studios that use patterns in original ways (e.g., Timorous Beasties, Marimekko, and others) (strong framing of knowledge). Then the students scrutinized the photos they took during the field trip and chose one to work with (some teacher control). The textile printing portion of the project also began with a traditional teacher presentation supported by a slide show on printing methods from potato- and leaf-print to silk print. The students watched videos from different corners of the world displaying printing using different approaches.

The development of student ideas

The students chose one of five photos to work with as before and printed 10 copies. The performed their ideation and pattern design work on the copies and were encouraged to see forms and lines within the photos (weak framing).

Pacing and location of work

This project was taught over a period of 10 weeks. At the beginning, all students proceeded at the same pace, but later they were permitted to work at their own pace. The methods

and approaches students chose were different. The patterns they designed could be demanding on different levels and thus influence the progress of the project. Some students used up to three lessons (80 min each) to carve out their stencil. The work took place within the textile room, but the tables were sometimes moved to the sides so that students needing more space could spread their projects out on the floor.

Erla Dís described approaches, methods, materials, and communication:

> The project is in fact very open and the methods that can be used to put patterns on textiles are manyfold, and the students learn about them right in the beginning. Students have considerable choice of materials (weak framing). Also, there is constant communication, conversation between me and each student (formative assessment) about the progress of their work. Often in such conversations good ideas are born. Students can choose a workplace within the textiles room and usually ask me (negotiation, strong to weak).

In the conversations Erla Dís had with her students, interesting ideas were born – what has been called "creative conversations" in some research (Chappell and Craft, 2011) – and she also used those words. She sometimes marked in two places in the table and explained that it was sometimes a negotiation between teacher and learner (**Figure 2**). She described the overall analysis of the project:

> The project offers ample creativity and very independent work process and approaches. But students' premises and interests certainly influence how this pans out. Some are insecure and do not manage independent work while others get lost in their own creative powers and even take the project further, do something unexpected, which is particularly pleasurable.

She described what she had found out by using the tool to evaluate the pedagogy for creativity she applied in practice:

> For me as a teacher this is a great project among other reasons because the frame is clear, but the freedom is also within and that helps to make the student products so versatile. My experience is that I am offering a suitable balance of freedom and control.

Erla Dís's example shows how the framing tool helped her become aware of the different elements of her pedagogy in practice, how control could be supportive, and when it was important to give students agency to be creative. If the first author were to plot her experience as a student in compulsory school and even in upper secondary school, the markings would be far to the left in most cases, displaying very strong framing.

Value of using the framing analytical tool

The other teachers in this PAR project showed different zig-zag patterns in their analysis of their practice. They were seldom far to the left (teacher control), and often near the middle or to the right side of the table (students significant control over some elements of their learning). Two other examples from the teachers in this PAR are presented next and can be seen in **Figure 3**.

The examples from Ása (Á), a drama teacher at the School of Education, at the University of Iceland, and from Sverrir (S), a crafts and information technology teacher at the compulsory level (5–16 year old students) are presented in **Figure 3**.

Sverrir analyzed a unit he taught in woodwork to 9-year- old students, where the task was to design and create a picture frame (**Figure 3**). The project and task are decided by the teacher and consider the aims for skills in the national curriculum for this age (mainly strong framing). Once the teacher has presented the project and tools that students might need as well as different types of frames, the students get a paper where they design the look they want for their frame (development of ideas, very weak framing). The methods are partially set, as students must follow a logical process, but they do have some influence on some of the steps and pace of their work (framing varies from considerably strong to weak). To get the teacher's assistance, students take a clothespeg with their name on it and fasten it to a line by the teachers' desk. The teacher can then see who is next and finds the student (strong framing of communication). The students each have their own workbench and can execute their projects there; alternatively, they can go over to a common space where they can paint, sitting or standing as they please (weak framing). The materials students can choose from are limited, although they are offered wood of varying thickness to choose from. The teacher evaluates various elements of the process such as whether the student can draw a design for a frame and transform an idea into a finished product. Students can influence one part of the evaluation process when they assess their own product and describe what they are pleased with and what not. This means that evaluation is mainly in the hands of the teacher (very strong to strong framing).

The unit Ása analyzed is a course called *From idea to play*. The students were a mixed group of in-service teachers and student teachers taking the course as an elective. Ása described the location of her marks in her table (**Figure 3**) and analyzed her unit of teaching as follows:

> The knowledge, content and themes are usually chosen by me the teacher (strong framing) but sometimes I take into account students' suggestions for tasks (strong to weak framing). The development of ideas and methods are often negotiated between me and the students (strong to weak

Selection /control over Framing:	Teacher always + + very strong	Teacher considerably + strong	Student considerably - weak	Student always - - very weak
Knowledge – content and themes	A S			
Topics	S	A		
Tasks	S	A S	A	
Development of ideas		A	A	S
Methods - approach		A	S A	
Pacing		A	S	
Sequence	A	S		
Communication		S A	A	
Location of work	A		S	
Materials		A	S A	
Evaluation		S A	A	

Receiver/obedient/dependent ← → Creative/free / independent

FIGURE 3
Ása Helga's and Sverri's examples.

framing) but the pacing and sequence is mainly decided by me (very strong to strong framing). Various materials to set up a play are offered and their choice often in the hands of the students or at my suggestion (strong to weak framing). There are no exams in the course and the evaluation is largely mine – however, students do a self-evaluation and give a peer review for each other (strong to weak framing).

Even though the teachers use of the tool revealed some differences, some similarities are also evident. They all marked certain parts of their practice as strongly framed or very strong – usually knowledge, topics, and tasks. Other elements varied a bit, but often tended toward weak or very weak framing. The purpose of using the tool was not to nail down precisely what kind of pedagogy was most successful in supporting student creativity, but rather to give the teachers a heuristic to look carefully at their own teaching to identify where they controlled student learning and creativity and where they gave them freedom and agency to be creative.

The teachers valued the tool as a supportive way to analyze and discuss their own teaching practice. They concluded that sometimes they needed to be in control, but also that they could sometimes give students more choice and freedom to support their creativity. The teachers also used other exercises during the 2-year research project to identify and analyze how they worked, such as interviewing each other, making collages about their professional working theories, and relating stories about their practice. After using the tool, the stories they told were often related to how they used framing. They described examples of both strong and weak framing, and explained how they had become more aware of when they would like to give students more agency to be creative. All eight participating teachers wanted to give students more agency and control, and found ways to do so by analyzing the different elements in their lessons. However, they also realized that they had to offer some strong or even very strong framing for some elements of a project, and that it was important that the affordances of their specific subject could offer the students special knowledge and skills that were unique to the subject.

Discussion

In this project we built on a model developed in research on teaching innovation and entrepreneurial education and converted it into an analytical tool. The model was founded on Basil Bernstein's concepts, who was one of the more complicated sociologists of our time. The team brought very different fields of expertise to the development of the model. **Figures 2**, **3** cover concepts well known to those who use Bernstein's work,

for example we could cluster selection, pacing, sequence and development of ideas into what is known as the instructional discourse. The elements of the regulative discourse will benefit from a project similar to that described in **Figure 2**. These include knowledge and criteria of knowledge, topics, and tasks. Finally, to complete the picture a workstation in a Bernstein fashion would house a group engaged in some of the other tasks such as communication and evaluation.

The studies reported here are diverse in nature but share a focus on creativity. We move from a discussion of a relatively new professional area in our description of entrepreneurial education. We hope it shows an interesting, challenging, and exciting area of teaching and learning. What the field needs now is more empirical research on entrepreneurship in different locations that call forth a variety of responses. There are opportunities for schools to offer entrepreneurial activities more often and with a clearer sense of mission. Innovation and entrepreneurship are not mirrors of each other but require a thorough understanding of the settings in which new work takes place and begins to understand what it faces (Jónsdóttir and Macdonald, 2013, 2019).

Several professionals in Iceland engage in entrepreneurial education in one way or the other. What we need are a wider range of topics and more cooperation with local enterprises, businesses and communities in order to motivate young people. COVID has taught us that we do not need to be on the spot to promote the cause we wish to champion. What is needed though is more focused discussion between adults and children with mutual respect. To achieve success those who work together will need to understand when the control is in the hands of the teacher and when it is possible for the student to take a leading role (Jónsdóttir and Macdonald, 2019). Also important is the regulative discourse in the district in which this project is situated where taking initiative is highly regarded.

The purpose of this article was to share a model that could help teachers to identify and analyze the elements they control in teaching and learning processes and recognize where and how they can support students' creativity. To achieve this, we discussed the model built on Bernstein's (2000) concepts, how it came about and how we used it as a tool in two PAR to help teachers discover how they could successfully support student creativity.

It can be challenging for teachers to break away from conservative approaches to teaching (Leroy and Romero, 2021). To bring creativity to the classroom requires that the role of the teacher shift from formal teaching to a more informal guidance. The model we have presented using Bernstein's (2000) concepts has helped teachers to allow students more creativity in their learning (Jónsdóttir, 2017; Jónsdóttir and Guðjónsdóttir, 2021). The teachers in the two PAR, both the teachers in the study 2013 and 2016, were able to identify elements of their teaching that they could influence to enhance and support their students' creativity within their subjects by adjusting framing.

Thus, creativity became a focus of how they taught their subjects as they considered how they could give their students more ownership over their learning process. Teachers should be supported by administrators in considering and reflecting on factors and nuances of pedagogy and how they apply framing. They need opportunities to collaborate in a safe professional environment where they can discuss taking risks, share fears and uncertainties, and learn from failures in order to create a constructive professional culture (Jónsdóttir, 2017; Henriksen et al., 2021; Jónsdóttir and Guðjónsdóttir, 2021).

Creativity is emerging as a serious element in the contribution of the arts to knowledge. If UNESCO's (2021) ideals, as they are presented in the report *Reimagining our futures together: a new social contract for education*, are to be realized, teachers must execute them in practice. We certainly need creativity, perseverance, and hope in a world of increasing uncertainty and complexity, and entrepreneurship education offers a promising pathway to meet those needs (Seikkula-Leino et al., 2021). But for teachers to travel down that pathway, policy makers, researchers and teachers must find ways to support them in their demanding journey. Our argument is that the tool we presented is useful to help teachers in different subjects and at different school levels to identify and understand which elements they control in teaching and learning processes and how they can support students' creativity.

Data availability statement

The data analyzed in this study is subject to the following licenses/restrictions: The data are owned by the teachers conducting their action research. The data are in Icelandic. Requests to access these datasets should be directed to SJ, svanjons@hi.is.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent was not provided because this study is already conducted - those adhered to all required ethical standards. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

Author contributions

SJ came up with the idea for the manuscript. SJ and MM developed and collaborated on writing the manuscript, have a long-standing collaboration starting with MM being SJ's

supervisor in the research described in the manuscript, and approved the submitted version.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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