
The concept of pedagogical innovation in higher education

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Abstract: The valorization of university teaching is of key concern to this institution's academic and political actors and is a foundation of pedagogical innovation. In this qualitative research I explored how thirty-two professors, recipients of the Université de Montréal excellence in teaching award, define their conception of pedagogical innovation. An analysis of the data allowed me to identify seven distinct notions of the concept of pedagogical innovation, to construct an updated definition and to propose a pedagogical innovation conception cycle.

Keywords: Pedagogical Innovation, Higher Education, Innovation Concept, Valorizing Teaching, Educational Innovation

1. Pedagogical Innovation: One Feature of Teaching Excellence

The literature review highlights that the twenty-first century university institution is experiencing a mutation of its teaching practice, mainly, dictated by laws or political directives subsequently implemented by establishments, but also by the isolated action of innovative professors.

In terms of professorial development, the United Kingdom can be singled out for its pioneering and structured teaching professionalization system, offered by the Higher Education Academy. The Higher Education Academy's Fellowship framework involves national recognition of professors' professionalism in teaching and learning in higher education in alignment with the UK Professional Standards Framework for teaching and supporting learning in higher education (UKPSF) (Higher Education Academy, 2012). The UKPSF sets out the main aspects of teaching and learning support roles within higher education and pursues five goals, notably that of: "Fosters dynamic approaches to teaching and learning through creativity, innovation and continuous development in diverse academic and/or professional settings." The aspects of this framework hinge on Areas of Activity, Core Knowledge and Professional Values. Over and above this, the Government is calling for greater transparency by obliging institutions to publish Key Information Sets (KIS)

with the aim of placing an emphasis on teaching and learning through the inclusion of information about professors' teaching qualifications.

In Quebec, within the framework of valorizing university teaching, the Dion Commission questioned unsatisfactory teaching quality reported by students. A report ensued entitled: Various methods for valorizing professors known for their teaching quality (Parents and Lessard, 1979). Moreover, the Parliamentary Commission report on university quality, accessibility and funding (Commission de l'éducation, 2004) found that, in addition to the challenges of globalization, competition, internationalization and excellence faced by universities, it was equally as necessary for them to prepare a well-trained workforce as it was for them to offer a haven conducive to research and creation. More recently, in preparation for the summit on higher education held by the Ministry of Higher Education, Research, Science and Technology (MESRST 2013), the issues of 1) the quality of higher education, 2) accessibility to and participation in higher education, 3) university governance and funding and 4) the contribution by establishments and research to the advancement of Quebec in general were addressed.

It appears essential for university establishments to institute a recognition strategy, to valorize teaching, and to motivate and reward the professors involved in teaching activities, in order to bring teaching and research back into balance. The valorization of university teaching revolves around pedagogical development support programs,

excellence in teaching awards, teaching assessment, technology, pedagogical support services or pedagogical symposia (Picard and Torkia, 2007). The current trend can be summarized in three concrete actions: supporting, rewarding and developing teaching activities. They also aim to valorize pedagogical innovations.

Conceptually, four research fields (Stoller, 1995) account for enquiry into university pedagogical innovation. Some studies look at instances of successful innovation or the role of leadership in the context of innovation development, whilst others analyse the characteristics of innovation or theoretical models. Nevertheless, I note that articulated definitions of this concept are rare.

Hannan and Silver (2000) explore pedagogical innovation vis-à-vis institutional and innovator culture. Falchikov (1993) focusses on faculty members' attitudes and values in a far-reaching study into innovations, innovators and their institutional context. Alberio, Linard and Robin (2008) fathom the mechanisms of innovation and problems related to technological development. They observe that pedagogical innovation depends on the opportunities open to innovators allowing them to engage in transformational activity that is, for them, meaningful, and the institution's ability to recognize the usefulness of this activity. Finally, Bédard and Béchar (2009) focus on pedagogical innovation conception, introduction and review, and conclude that the curriculum - a conceptual tool - offers an original perspective on major pedagogical innovation.

The research studies of Ganesan, Edmonds and Spector (2002), Goodyear (2002) and Knight and Trowler (2001) demonstrate that the creation of a climate conducive to teaching and learning depends on institutional policies and academic leadership. In universities in which research activities are of primary importance, the establishment's educational policy can influence the importance accorded to teaching (Guyot and Bonami, 2000). In effect, a university establishment's will to valorize teaching is expressed in the proportional weight of teaching in the criteria for obtaining a promotion or permanent position (Hérbert, 2003). Moreover, the focus of the educational policy of the university establishment in which a professor teaches plays an important role in the development of pedagogical innovators (Hannan, 2005). In effect, pedagogical innovation is only rewarded in institutions that have made student learning a priority (Ibid).

In this particular context, I hope to understand the concept of pedagogical innovation in a research university. I am curious about the commitment displayed by those professors who work assiduously to improve their teaching despite the constraints observed and the minimal recognition which this attracts in research-focussed universities. According to Pelletier's (2009) studies, pedagogical innovation is one of the solutions deployed in the face of the pressures placed on universities. Thus, my desire to refine the conceptual framework logically leads me on to seeking an exploratory definition of pedagogical innovation, which I will now pursue.

2. An Exploratory Definition of Pedagogical Innovation

Innovation is primarily associated with pure science or technology and the term is often generalized to mean technological progress. Nevertheless, pedagogical innovation assumes many other forms. In this context it is difficult to establish a definition of pedagogical innovation. However, researchers have worked on this concept to try to define it.

The term 'innovation' is similar, in its literal meaning, to that of adjustment, improvement, development, study/pilot project, experiment, or even modernization, reform or renewal. Pedagogical innovation can also be called scholastic innovation, in education or in training. Pedagogical innovation calls for one-off, measured and sustainable positive change.

According to Béchar (2000), pedagogical innovation corresponds to a change that he defines as, "an intentional action that aims to introduce something original into a given context, and it is pedagogical as it seeks to substantially improve student learning in a situation of interaction and interactivity." (p. 3), which he later expands upon with: "In a university context, pedagogical innovations are often described as everything which is not lecturing, the method still used by the overwhelming majority of professors." (Béchar and Pelletier, 2001, p. 133).

Cros (2001) agrees with Béchar's (2000) notion of change, but believes that innovation and reform are similar and bring about change, and explains that innovation stems from an intention and generates actions that have the aim of changing or modifying a situation or practice from the starting point of an acknowledgement of deficiency, inadequacy or discontent vis-à-vis the targets set. For Huberman (1973), pedagogical innovation is: "an intentional, measurable and sustainable improvement that is unlikely to happen frequently" (p. 7). It entails implementing, securing acceptance of and widely using a change that must survive without losing its initial characteristics. Innovation lies in integrating an institutional plan, a method, a process, a technology, etc. that is transferred, imported or borrowed from elsewhere (Cros and Adamczewski, 1996; Cros, 2001; Béchar, 2001).

It is also how something new is perceived by the actors of a previously well-established system (Rogers and Shoemaker, 1971). For Charlier and Peraya (2003), "It is a transformation, an actual change and not only the idea or the plan to change. This transformation can be brought about by different actors and carried out at a local or global level. This transformation must have positive effects (improvements to system efficiency)." (p. 202). Whilst innovation allows a state to be improved, it does not constitute the solution to a problem, but demands creativity and originality (Cros, 2007). It is creativity, inventiveness and initiative through the renewal of an institutional measure, a method or a process (Cros, 2002-2).

Finally, innovation aspires to positive change brought about by actions that I do not wish to call activity, as Bécharde (2000) does, but rather by an intentional and precise act of creation. Innovation engenders the performance of a better understanding, a 'better way of doing', and also a 'better being' containing the applied knowledge and expectations of efficiency and profitability (Cros and Adamczewski, 1996). According to Bécharde (2001), innovation entails changing intellectual approaches, attitudes and behaviors.

Pedagogical innovation in a university context is characterized by an intentional action that aims to improve university students' learning in a sustainable manner. The technological, financial and social changes of today's university require greater performance from the professor, which is assessed by their peers' and students' qualitative criteria.

3. Aim and Research Question

In the absence of studies on the concept of pedagogical innovations at the Université de Montréal, this study contributes new knowledge to this field. I aim to achieve my research objective, which consists of: "identifying, describing and explaining the conception of pedagogical innovations held by professors in a university strongly committed to research". I explore the research question: What is the university's professors' conception of pedagogical innovation?

4. Methodology

Data collection took place at the Université de Montréal, a French-speaking institution in Quebec that is strongly committed to research. I conducted semi-structured interviews with 32 assistant, associate or full professors, all recipients of an excellence in teaching award. I chose the qualitative approach and constructed theories empirically, based on professors' discourses and used the grounded theory analysis method (Paillé, 1994), which appeared pertinent in this case.

A grounded theory is developed and validated simultaneously, through a method of constant comparison, the main characteristic of 'grounded theory' according to Glaser and Strauss (1967), between the reality observed and the emerging analysis. Thus, the theory ensures that the result is, as it should be, "firmly grounded in empirical data" (Paillé, 1994, p. 150).

To employ this iterative process of progressively theorizing a phenomenon, I followed the six fundamental steps (coding, categorization, connection, integration, modelling and theorization) (Ibid). Coding verification by inverse coding, followed by reverse coding, was carried out to ensure accuracy and validity. As calculated by QDA Miner, a qualitative data-analysis program, the 70% required to guarantee coding validity was achieved or exceeded for 25% of the material.

5. The Seven Distinctive Notions of the Concept of Pedagogical Innovation

I am seeking to define the participants' concept of pedagogical innovation. For the purpose of this research I have taken pedagogical innovation to be any teaching that is delivered in ways other than the traditional practice of the lecture. I believe that a pedagogical innovation can be equated with any new action that aims to improve student learning. The interviewees shared their conception of pedagogical innovation expansively and demonstrated intense reflection. In their conception of pedagogical innovation they include definition elements that are influenced by how they put an innovation into practice.

Extracting the data collected during the individual interviews allowed me to structure the analysis around 33 sub-themes, the substantive categories (Glaser et Strauss, 1967), i.e. those that pick up on the professors' discourses without modification as regards the interviewed professors' conception of pedagogical innovation. I then proceeded to an ordered reconstruction of the professors' discourses in line with the research questions. An analysis of the sub-themes relating to the concept of pedagogical innovation revealed seven themes in the interviewed professors' discourses. These were novelty, change, reflection, application, improvement, human relations and technology versus pedagogy.

The analysis allowed me to establish links and map a hierarchy among the substantive categories corresponding to Paillé's (1994) connection stage. I can establish relationships between the categories by using the "paradigmatic model indicating the main dimensions of an action category: its causes, context, structural conditions, and the actions and interactions that it encompasses and their consequences." (Laperrière, 1997, pp. 319-320). I studied their internal and horizontal recurrence and their degree of congruence with the 'draft theory' (Fourez, 1988) for this research, which aimed to shed light on the professors' conception of pedagogical innovation. In this analysis, the construction of formal categories takes place through the links uncovered between the substantive categories and their hierarchy within the perspective of the project. All this occurs within a process of comparative and constant data analysis, a kind of continuous shuttling back and forth between the substantive categories taken directly from the professors' discourses and those elaborated by the researcher.

I propose grouping each of the sub-themes into one of the seven formal categories that emerged from the analysis of the data extracted from the professors' discourses. I have called them Distinctive Notions, as each notion of the concept of pedagogical innovation is different and unique.

The first relates to Novelty while the second contributes to the notion of Change. The third notion establishes a link with Reflection, while the fourth evokes the idea of Application. The fifth deals with Improvement while the sixth notion briefly explores the relationship between Technology and Pedagogy and the seventh notion maintains Human Relations.

Table 1. List of Distinctive Notions of the conception of pedagogical innovation by frequency and instance

Distinctive Notions	Sub-themes	Definition	Frequency ¹	Instances ²	
1	Novelty	Something arising for the first time, which does not follow tradition.	36	18	
		Surprising students	Pedagogical innovation is, first and foremost, surprising your students.	2	2
		Not what everyone does	Pedagogical innovation is the opposite of what everybody else does.	3	2
		Contrary to the norm	It is being counter-trend, using methods contrary to the main tendency.	3	2
		Novelty		44	24
2	Change	Changing	Replacing something with something else. Radical, profound change.	35	20
		Adapting	Pedagogical innovation means adapting to the present, to the current situation.	4	2
		Leadership	Pedagogical innovation is having a leader or trend-setter attitude.	2	1
		Temporary	Temporary, in the sense that it will be relevant at a certain point in time and not forever.	2	1
		Unlimited	Pedagogical innovation has no limits (field, type).	1	1
	Change		44	25	
3	Techno-Pedagogy	Not a PI if no pedagogical thinking	An innovation is only pedagogical if the thinking that created it is pedagogical. A technological innovation is not necessarily a pedagogical one.	29	11
		Techno-Pedagogy		29	11
		Reflection during testing	Reflection continues during the testing of a pedagogical innovation.	13	6
4	Reflection	Introspection	The professor ponders the definition and the very meaning of pedagogical innovation.	17	11
		Creativity	Creative, inventive and imaginative ability arising from the professor's ideas.	7	4
		Pedagogical reflection	Pedagogical innovation is pedagogical reflection.	2	2
		Intellectual	Intellectual innovations are those used by a professor when the topic is complex and they reflect upon and seek how to best address it.	3	2
		Psychological	At undergraduate level, pedagogical innovation is more closely related to psychology.	4	1
	Reflection		46	26	
5	Improvement	Improving	Making something better, introducing positive changes.	17	12
		Making the subject understood	Pedagogical innovation serves to make the subject better understood.	2	2
		Quality	Pedagogical innovation is teaching quality.	5	2
		Success	A success, the positive outcome of something.	1	1
		Improvement		25	17
6	Application	Being a process	Pedagogical innovation is a process.	2	2
		Linked to the discipline	The type of pedagogical innovation is linked to the discipline.	15	7
		Linked to the audience	The type of pedagogical innovation is linked to the audience, the class.	10	7
		Linked to technology	Pedagogical innovation is linked to technology.	4	4
		Different levels and impacts	Pedagogical innovation has different levels and different impacts.	6	4
		Construction	Pedagogical innovation is a construction.	7	2
		Using tools	Pedagogical innovation is the use of tools.	2	2

Distinctive Notions	Sub-themes	Definition	Frequency ¹	Instances ²
7	No ownership	There is no ownership of pedagogical innovation.	1	1
	Application		47	29
	Innovation is constructed within relations	Pedagogical innovation is constructed within the professor-student relationship.	5	2
	Moving closer to one's pedagogical ideal	Pedagogical innovation means moving closer to one's pedagogical ideal.	2	1
	Human relations			
	Learning as a professor	Pedagogical innovation is learning as a professor.	1	1
	Taking risks	Pedagogical innovation entails taking risks.	8	6
	Linked to the teacher's personality	Pedagogical innovation is intimately linked to the teacher's personality.	6	2
	Human relations		22	12

¹ Frequency is the number of segments coded as relating to the sub-theme

² One instance is one interviewed professor participating in the research. Here, this column shows the number of instances (professors) who have one or more segments coded to the sub-theme.

5.1. The Notion of Novelty

The novelty Distinctive Notion encompasses the sub-themes of novelty, surprising students, not what everyone does and contrary to the norm. It represents the idea of novelty that is very apparent in the interviewed professors' conception of pedagogical innovation. It is, in particular, a question of a new way of teaching that is different from the usual practice, which implies going against the grain and may surprise students when implemented.

By way of illustration of the notion, one professor asks his students to summarize their exam's text in 140 characters, the length of a Tweet. This is pedagogical as the teacher wanted his students to summarize their text in different ways; and it is new and surprising as in his discipline lengthiness is the usual expectation.

5.2. The Notion of Change

The distinctive notion of change includes the sub-themes of changing, adapting, leadership, temporary and unlimited. The notion of change is very important in the respondents' conception of pedagogical innovation. The professors interviewed used the notion of change to explain the introduction of a change in their teaching. This change takes different forms. It can be slight or radical. The results show that change also refers to an adaptation. I think it imperative to highlight that the change must be managed and is only temporary.

This means, for example, changing from a traditional, in situ, lecture format to a hybrid method that combines the autonomous online learning model with face-to-face meetings in small groups; or, opting to replace an objective-based approach with a skill-based approach.

5.3. The Notion of Reflection

The distinctive notion of reflection includes the sub-themes of reflection during testing, introspection, creativity, pedagogical reflection, intellectual and

psychological. The notion of reflection proved to be deeply implicated in the interviewed professors' conception of pedagogical innovation. From a spontaneous questioning reaction in response to the term pedagogical innovation to in-depth pedagogical reflection, reflection appears to be present throughout the process of a pedagogical innovation. One participant explained that he approached his reflection on pedagogical innovation differently dependent on his audience. From this I deduce that pedagogical innovation thrives on professors' creative reflection. The notion of reflection extends to during testing, which allows him to observe the product of his questioning about his innovation.

It entails, for example, differentiating 'pedagogical DIY', where the professor hears about a novelty and tries it out, or adds an audio-visual clip because he is not satisfied with his teaching or his students' learning, from pedagogical innovation which requires pedagogical reflection based on a conception of learning or a conception of the role of the professor or students, etc. New procedures, new ways of doing and new pedagogical formats are implemented based on this reflection.

5.4. The Notion of Application

The notion of application comprises the sub-themes of being a process, linked to the discipline, linked to the audience, linked to technology, different levels and impacts, construction, using tools and no ownership. This notion of application appears to be crucial in the conception of pedagogical innovation according to the professors' discourses and corresponds to what the participants deemed to be important elements in integrating their pedagogical innovation.

In other words, professors who have used clickers (student response systems) to obtain immediate feedback in order to assess student understanding, or allow students to respond to sensitive questions to gauge tendencies and better focus their teaching, have encountered technical problems related to using the device and its software. First, they had to master how to use them, and adapt their teaching and pedagogy to this format. Then, they needed to

familiarize students with this classroom method, and finally deal with the unforeseen. In this specific case, the implementation of pedagogical innovation is significantly linked to technology, as a technical fault may lead to the failure of a lesson, however well prepared.

5.5. The Notion of Improvement

The notion of improvement includes improving, making the subject understood, quality and success. Although less frequently mentioned, this notion is also one of the facets of the interviewed professors' conception of pedagogical innovation. Often described as a desire to make the subject understood, improvement is also mentioned as a qualitative motivation and relating to success.

By way of an example, one professor giving undergraduate classes in mathematics teacher training invited colleagues to his classes in order to provide an interdisciplinary slant on maths. At the outset he decided that in order to illustrate certain complex theories to students it would be apt if an expert from another discipline would come and explain how mathematics is used in their field.

5.6. The Notion of Technology Versus Pedagogy

The notion of technology versus pedagogy contains a single sub-theme: not a PI if there is no pedagogical thinking. It seems that the 1990s ideology that computers would replace professors has left its mark. Effectively, the notion of technology versus pedagogy emerges from the verbatim as a clarification on behalf of the participants, who explain the distinction that they draw between pedagogical innovation and technological innovation. They only perceive something as a pedagogical innovation when it is constructed by pedagogical thinking. Thus, it seems that the participants are now denouncing a recurrent confusion between technological innovation and pedagogical innovation, which they resolutely and collectively wished to clarify.

For example, making a PowerPoint presentation from a lesson available online is not pedagogical innovation. However, if a professor posts clinical case studies online with a specific problem to solve and then the student finds the solution and can explain how they obtained the result, this allows them to practice autonomously. Similarly, one professor admitted having proposed a discussion forum without offering, due to a lack of time, guidance and a pedagogical aim. He noted that this technological innovation failed due to a lack of pedagogical intent in his approach.

5.7. The Notion of Human Relations

The human relations notion covers the sub-themes: innovation is constructed within relations, moving closer to

one's pedagogical ideal, learning as a professor, taking risks and linked to the teacher's personality. This final notion appearing in the interviewees' conception of pedagogical innovation collates all the elements relating to a professor's human and personal aspects. It mentions risk-taking, which could expose certain professors to an imbalance, but recalls that pedagogical innovation is a learning opportunity for the professor. Pedagogical innovation stems from very personal origins within the university teacher, who appears to seek to move towards their pedagogical ideal. Finally, I highlight that a human and pedagogical relationship brings meaning to the construction of the pedagogical innovation.

One professor explained, for example, that one does not innovate alone. In other words, he innovates for students, but also with their participation, or that of colleagues or external stakeholders. Thus, innovation is located at the very heart of professor-student and professor-outside world-student relations.

6. Seeking a Definition of Pedagogical Innovation

Extracting data from the interviewed professors' discourses, its analysis and its interpretation has allowed me to propose an updated definition of pedagogical innovation as follows:

It is a new way of teaching, unlike those commonly used; it is bespoke and surprises students. Consequently, it heralds a change driven by a transitory adaption to pedagogical objectives and the new student profile. It stems from a reflection that is pedagogical, intellectual, creative, psychological and sustained, and that shapes itself progressively through a multi-level and multi-impact process linked both to the audience and the discipline or the technology and that aims to improve quality, like a desire to make the subject understood and foster success. Unlike technological innovation, the innovation is only pedagogical if it is constructed by pedagogical thinking, in particular in human relations at the will of the personality of the devoted professor.

7. Proposed Pedagogical Innovation Conception Cycle

Subsequently, the analysis of the seven Distinctive Notions of the conception of pedagogical innovation highlights an underlying dynamic to the professors' discourses. Here is a working hypothesis that suggests the existence of a current pedagogical innovation conception cycle and allows me to visualize a shared repertoire through the figure 1. below.

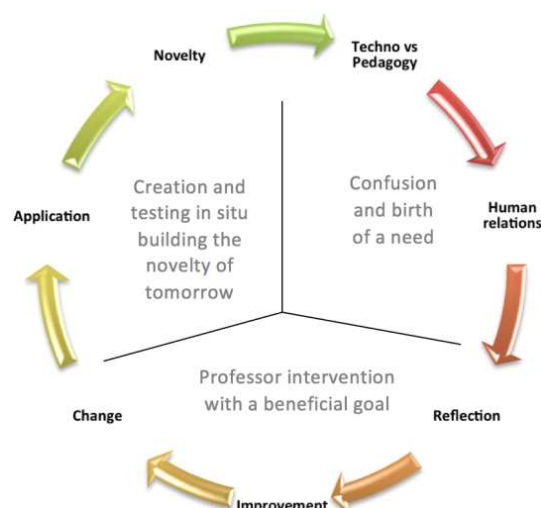


Figure 1. The current pedagogical innovation conception cycle

The confusion arising from technological innovation versus pedagogical innovation has generated a need in the human pedagogical relation that encourages reflection with a beneficial goal for the purposes of change and that the professor will apply in order to introduce the novelty.

I have called the present conception a cycle in recognition of the fact that today's novelty could become tomorrow's confusion and need. In effect, a cycle is a series of phenomena that repeat in an immutable order. Thus, in this case, the end of the cycle is the novelty, which will tomorrow become something commonplace. Consequently, in order to regenerate a pedagogical innovation we depart from the last phenomenon that has become commonplace and repeat each of the distinctive notions to start a second cycle, etc.

8. Conclusion

This research has facilitated an in-depth exploration of the concept of pedagogical innovation in order to complement knowledge on this topic that remains highly complex.

The richness of the data collected allowed comparison, integration, modelling and theorizing leading to the seven Distinctive Notions, as well as the current pedagogical innovation conception cycle. Furthermore, this cycle reminds me that the pioneering nature of a pedagogical innovation is fleeting as it will become habitual.

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