

Principles of Interdisciplinarity in Content and Language Integrated Learning

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Abstract: Content and Language Integrated Learning (CLIL), being one of the most effective teaching methods of both language and content subjects, has spread all over the world in the past few years. Most of the educational institutions have started to integrate this technology in their curriculum and hire content teachers with appropriate language level. However, the implementation of CLIL is not easy as it may seem as this decision requires new curriculum, new pedagogy and qualified staff. Thus, the article aims to highlight the main principles of interdisciplinarity as the basis for integrating different disciplines and point at the most viable criteria for forming interdisciplinary connections.

Key words: Interdisciplinarity, bilingualism, integration, integrative, cooperation, professional competence, academic discipline, theory-oriented disciplines, practical disciplines.

INTRODUCTION

The study of theoretical and methodological foundations of foreign language education of future specialists highlights the development of interdisciplinarity during the improvement of professional competence as a system-forming factor of foreign language professional education (Kobicheva et al, 2019, p.357; Marsh, 2010 p.34).

The origins of interdisciplinarity

Being central in Content and Language Integrated Learning, the concept of interdisciplinarity can be explained as a combination of two or more academic subjects that form a particular discipline. The origin of the term *interdisciplinarity*, placed within the Social Science Research Council, was used as a kind of 'bureaucratic shorthand' for research involving two or more professional societies (Roberta Frank, 1988, cited in Klein, 1996, p. 8). Encyclopedia suggests that term *interdisciplinarity* is equivalent to interdisciplinary studies, which can be used in projects or academic field, where teachers, students or researchers can be involved to integrate several academic disciplines, thoughts or technologies for one common goal. Julie Klein (1990) points out that defining the term *interdisciplinarity* can be confusing because of its universality and complexity. He says that driven by "the ideas of unity and synthesis", educators, researchers and teachers collaborate across different disciplines to perform various tasks:

- to solve complex problems that are beyond one particular discipline;
- answer complex questions;
- refer to broad issues;
- unite knowledge across disciplines.

The origin of interdisciplinarity is closely connected with the development of science, when there was a need for cooperative work within the disciplines. It was found that every specialism was interdisciplinary in its nature and every interdisciplinary field actually required specialists trained in other fields. It is worth mentioning here that the approaches in each discipline were changed by the other, which shows the impact of one particular discipline on the other.

Student movements in the US, Canada and France are also considered as an origin of interdisciplinarity. The students suggested a sort of complementarity of disciplines and listed similar teacher expectations, which could create a minor conflict between younger teachers ready to embrace the new and more senior instructors who are usually more "established" in their disciplines (OECD, p 44).

Another factor that promoted interdisciplinarity was the need for professional training. Being an expert in his/her own field, the person might need to engage in other areas and consult other specialists.

The history of interdisciplinarity started in the United States during the World War 1 and post war period, where this term was mostly connected with social psychology and biochemistry. During this period, the concept of interdisciplinarity, associated with progress and innovation, gained its popularity among university students (Weingart and Stehr, 2000, p. 12). The student unrests in 1960s made the universities replace disciplinary structures with more holistic subjects. In 1972 with the aim of spreading the idea of interdisciplinarity, the OECD published the volume *Interdisciplinarity* that promoted

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several studies and conferences. However, fifteen years later it was found out that it lost its momentum (Weingart 2000, following Levin and Lind 1985, p. 9).

Klein (1996, pp. 20-21) points out that interdisciplinary programmes are much fewer in number than in the 1970s.

Interdisciplinarity versus disciplinarity

Arguments for interdisciplinarity generally arise from debates surrounding disciplinarity. Within these debates, two main points can be found. The first identifies it as a layer filling the gaps that disciplinarity leaves vacant. Brewer (1995) notes that: "Problems designate theory and methods, not the reverse, in sharp contrast to discipline-based and curiosity-driven inquiry." (p. 328) However, with a problem-focused viewpoint, he points out that the problems are created rather than given and it is important to bring the views, methods and theories together to identify what problems might arise and how we can solve them:

any method has blind spots that focus attention on highly selected aspects of a problem while blocking it out for others

(1999, pp. 329-330, citing Stern, 1986).

Criteria for the formation of interdisciplinarity

Today interdisciplinarity refers not only to education but also to industry, government and the professions, and, consequently, can be interpreted in different ways.

There are several reasons for confusing the concept of *interdisciplinarity*. The fundamental one is the lack of certain body of discourse, which could provide specific definition and professional identity. Another reason for confusion is the fact that interdisciplinarity is associated with a variety of experiences with no clear definition.

In our case, interdisciplinarity means the integration of two or more academic disciplines united with one common educational goal. So we can infer that integration here is the core element of combined teaching. Julie Klein in her book "Interdisciplinarity: History, Theory & Practice" uses the terms *interdisciplinary* and *integrative* interchangeably to refer to the adjectives denoting the aim to integrate different aspects or fields.

The way the disciplines are integrated or linked is another debate. Based on the report by OECD (1972), Chettiparamb examined some common principles of interdisciplinary linkages:

1. "No constant relationship exists between the idea of regrouping disciplines and that of an interaction between the disciplines and regrouping people." This finding reports that very often in pedagogy, teaching is done in a way that students had to figure out the sense of the whole themselves. There is hardly any team teaching effort.
2. Mostly disciplines are regrouped around a field of study rather than on the basis of a structure of knowledge or of learning algorithms.
3. The number of regrouped disciplines can be extremely variable. Ranging from two to three to as many as more than twenty.
4. Criteria employed for regrouping varied. However, a typology was identified as follows:
 - ✓ re-grouping one or several theory-oriented disciplines within or several rather practice-oriented disciplines;
 - ✓ regrouping disciplines which are largely homogeneous (purely practical one, purely theoretical ones);
 - ✓ regrouping a set of exact sciences and one or several social sciences;
 - ✓ regrouping a set of social sciences with one or two exact sciences;
 - ✓ regrouping on the basis of similarity or the amount of shared areas;
 - ✓ regrouping on the basis of disciplinarity or heterogeneity.
5. It was reported that no systematic conclusion could be drawn for how integration should occur or for how much emphasis each discipline should receive. (pp. 39-42).

In the case of interdisciplinarity and integration, finding the idea appealing is one thing, but transferring the idea into pedagogy and teaching requires much more than an understanding of the concept. The Subcommittee on Interdisciplinary Teaching at Emory University (www.emory.edu/TEACHING/Report/AppendixC.html) defines interdisciplinarity in pedagogy as "(1) the enrichment of one discipline by use of the language, methods, or canons of one or more other disciplines; or (2) the common inquiry into universal themes, such as health, justice, or violence, using the language, methods, and canons of two or more disciplines." The report of the task force of the Association for Integrative Studies refers to interdisciplinarity as "involvement of more than one disciplinary perspective and explicit attention to the question of integration". Such integrated modules or programmes frequently appear as 'core courses', 'integrated studies' or 'interdisciplinary studies'.

Heckhausen argues that interdisciplinary education should clarify its own disciplines within which the cooperation will occur.

Throughout the literature review we have identified the differences in the definition of the nature of integration and integrated learning. Accordingly, the primary task of our dissertation is to determine what we mean by "integration" and "integrated learning", as well as related concepts, and to form the conceptual apparatus of our study.

Considering the definition of the concept of "integration", several explanations can be drawn. The Philosophical Encyclopedia (1983) offers the following option: "Integration (lat. *integratio* - restoration, replenishment, from *integer* - whole) is a side of the development process associated with the unification of previously heterogeneous parts and elements into a whole. From the point of view of philology and linguistics, integration is understood as the process of leveling differences between languages in the framework of their transformation into one language (Jerebilo, 2010).

K.Kh. Gadoev (2015) notes the practically identical concepts of "integration" and "integrativity" and defines them as "the process of turning parts into a single whole." Yu.A. Schrader considered integration in the context of the educational process and the relationship between natural and social sciences. In this process, he considered that the main thing is not the cooperation of independent partners, but merging into each other" (Likhachev, 2010).

Pedagogical aspect of integration is reflected in the works of Yakovlev (1980, 1987). The author identified general integration trends in higher education and in society, and the features of the reflection of integration processes in technical universities. Considering integration as the main trend in modern science and education, I.P. Yakovlev in his works focuses on determining the conditions and factors for the effectiveness of integration in higher education, emphasizing that integration processes in higher education have a positive effect on the quality and level of training of graduates. Pointing out that integration in universities is a special thing, the author (1980) writes about the need for a theoretical analysis to scientifically substantiate the unification of knowledge and cooperation in universities, calling them fundamental factors for the development of higher education and the training of a highly qualified specialists.

In his subsequent work, I.P. Yakovlev (1987) calls problem-based learning as the most effective means of integration in universities. According to the scientist, problem-based learning is likely to change the traditionally accepted structure of lectures and seminars, as well as become the source for new teaching formats, such as role-playing games, simulation games of real life situations and other forms of work that require the teacher and students to integrate theoretical and practical knowledge, as well as multidirectional team work of students.

In pedagogy, a type of integration based on the concept of interdisciplinarity, defined as "understanding carried out outside the framework of a specific scientific discipline" is often considered (Shoshtaeva, 2003). "The researcher creates a new synthesis that opens up a new reality. And then he uses a new language. This case is the case of the creation of a new discipline," says E. A. Bushkovskaya (2009).

Today the ideas of interdisciplinary integration are no longer innovative and are fixed in many curricula around the world. Some of the educational establishments unconsciously conduct the lessons integrating not only two different disciplines, but also language and content subject. Payne (1999) argues that interdisciplinarity already exists within disciplines and supports his idea citing Klein (1990, p. 188) who defines interdisciplinarity as "neither a subject matter nor a body of content. It is a process for achieving an integrative synthesis, a process that usually begins with a problem, question, topic, or issue" (p. 175).

Klein (2000, p. 8) further argues that interdisciplinary activity nowadays is in the center of disciplinary practice where researchers aim to interact with experts of other areas to achieve a more innovative approach and cover more actual topics in the research field. Dogan and Pahre (1990) discuss the reasons of interdisciplinarity becoming a focus of modern education. He says that hybridization in disciplines leads to the knowledge advancement and creates the crossing between the subjects that enhances the learning and serves as a supplement and complement to knowledge formation.

Interdisciplinary knowledge strengthens the connections between the disciplines and provides a new source of information and research field (Klein, 2000, p. 18).

According to Shibaev (2009), the fundamental aspect in understanding and applying the principles of interdisciplinary integration is the need to identify and classify its types and levels.

Interdisciplinary connections should be seen as not only the interaction of individual subjects, but also the interaction of instructors and students, that is, as a system of all elements of the learning process. To determine the importance and place of interdisciplinary relationships in the learning process, it is necessary to classify their relationships, because a systematic approach allows to determine not only the versatility of these relationships, but also their manifestation and methods of their use (Figure 1).

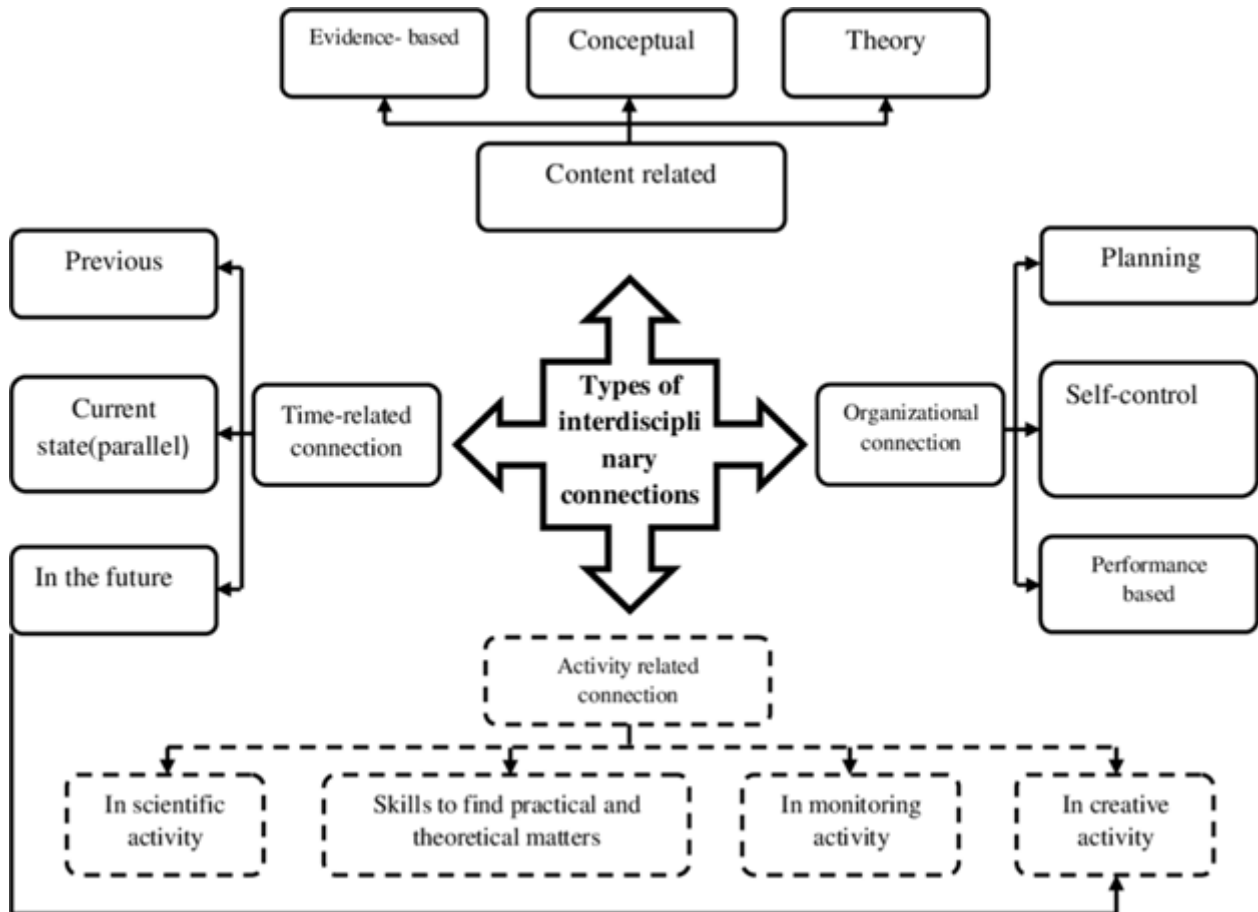


Figure 1. Description of types of interdisciplinary connections

According to B.S. Abdullaeva (2005), interdisciplinary connection is not only a means to achieve the full development of the student's personality on the basis of common social goals in the organization of disciplines, but also one of the important factors in defining scientific systems based on specific pedagogical tasks, knowledge, skills and attitudes.

CONCLUSION

Thus, interdisciplinary teaching involving the integration of different disciplines or language with subject content can be a promising area for creating a powerful “academic weapon”, which can simultaneously enhance both disciplines. The interdisciplinary forms of instruction aid students in overcoming a tendency to maintain preconceived notion. These forms of instruction accomplish this goal in two ways. Firstly, by directing students in finding out their own way of identifying the important points from a range of disciplines that contribute to an understanding of the issue under consideration. Secondly, by helping students develop the ability to integrate concepts and ideas from these disciplines into a broader conceptual framework of analysis.

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