



How to cite this article:

Bauzá Capart, D. & Rodríguez Miranda, F. P. (2020). The interdisciplinarity in the private schools of the international Baccalaureate: difficulties for its implementation from the viewpoint of the academic coordinators. *MLS Educational Research*, 4 (2), 114-130. doi: 10.29314/mlser.v4i2.403.

**THE INTERDISCIPLINARITY IN THE PRIVATE SCHOOLS OF
THE INTERNATIONAL BACCALAUREATE: DIFFICULTIES FOR
ITS IMPLEMENTATION FROM THE VIEWPOINT OF THE
ACADEMIC COORDINATORS**

David Bauzá Capart

International Iberoamerican University (United Arab Emirates)

davidbauza@yahoo.es

Francisco de Paula Rodríguez Miranda

University of Huelva (Spain)

francisco.paula@dedu.uhu.es · <https://orcid.org/0000-0002-8167-8811>

Abstract. In 2014 the International Baccalaureate publishes a revision of the curriculum of the Middle Years Programme (IBMYP), whose main novelty is the introduction and promotion of interdisciplinary teaching and learning in response to a growing need for transform education as a reaction to the challenges posed to students through an increasingly globalized world. The implementation of these interdisciplinary projects should allow students to find solutions to problems of various kinds through the integration of concepts, knowledge and methods from two or more subjects. Based on this, interdisciplinary learning is shown as an obvious methodological and pedagogical advantage but also as a logistical challenge for Academic Coordinators when trying to respond to the various needs and demands it poses. The use of instruments for the collection of information such as the survey and the semi structured interviews has allowed us to obtain data from Academic Coordinators of private schools around the world attached to the IBMYP regarding the difficulties encountered in the implementation of Interdisciplinary projects. The results focus on temporary barriers, the most felt difficulty being the lack of collaborative planning and evaluation. This work, in addition to analyzing these difficulties, raises possible solutions to face them and promote an improvement in the curricular integration process of this type of interdisciplinary projects.

Keywords: Interdisciplinarity, Middle Years Programme, Academic Coordinators, implementation of programme, international baccalaureate.

LA INTERDISCIPLINARIEDAD EN LOS CENTROS PRIVADOS DEL BACHILLERATO INTERNACIONAL: DIFICULTADES PARA SU IMPLEMENTACIÓN DESDE EL PUNTO DE VISTA DE LOS COORDINADORES ACADÉMICOS

Resumen. El Bachillerato Internacional publica, en 2014, una revisión del currículo del Programa de los Años Intermedios (PAIBI), cuya principal novedad es la introducción y promoción de la enseñanza y el aprendizaje interdisciplinarios como respuesta a una creciente necesidad de transformar la educación ante los desafíos planteados por un mundo cada vez más globalizado. La implementación de estos proyectos interdisciplinarios debe permitir al alumnado buscar soluciones a problemas de diversa índole a través de la integración de conceptos, conocimientos y métodos provenientes de dos o más asignaturas. En este sentido, el aprendizaje interdisciplinario se muestra como una evidente ventaja metodológica y pedagógica pero también como un desafío logístico para los Coordinadores Académicos a la hora de tratar de dar respuesta a las diversas necesidades y exigencias que plantea. El uso de instrumentos de recogida de información como la encuesta y las entrevistas semiestructuradas nos ha permitido obtener datos de los Coordinadores Académicos, de escuelas privadas adscritas al PAIBI alrededor del mundo, relativos a las dificultades encontradas en la implementación de los proyectos interdisciplinarios. Los resultados ponen el foco en barreras de carácter temporal, siendo la dificultad más sentida la falta de planificación y evaluación colaborativas. Este trabajo, además de analizar dichas dificultades, plantea posibles soluciones para afrontarlas y promover una mejora en el proceso de integración curricular de este tipo de proyectos interdisciplinarios.

Palabras clave: Interdisciplinarietà, Programa de los Años Intermedios, Coordinadores Académicos, implementación de programa, bachillerato internacional

Introduction

Since 2015, the International Baccalaureate Middle Years Program (MYP) has launched a project entitled “Next Chapter.” Among other innovations, it has been proposed that the centers attached to this program adjust their curriculum to a new vision of a more interdisciplinary nature. To this end, the Promotion of interdisciplinary teaching and learning in the MYP (2014a) was published, a guide in which the bases of the new demands requested by the MYP were established. In this document, interdisciplinarity is defined as the field of study that crosses the traditional boundaries between various academic disciplines, or between various schools of thought. Thus, interdisciplinarity in knowledge, as well as in the relationships between the different elements, is present in all phenomena of the universe and although historically the desire to improve knowledge has tried to isolate each of the realities by fitting them into disciplines, it has not been possible to avoid these natural relationships. In this sense, at an educational level, Beane (1995) highlights that:

educators should think of student curricular experiences through the metaphor of a puzzle, in the sense that students often move from one course to another to confront dissociated and disconnected events or activities that lack relevance or meaning for them. In traditional educational models, the significant interconnections between disciplines and between them are scarce, resulting in students lacking a sense of purpose or coherence in their school experience (p.8).

In the last decades, it has been tried to unify, in the educational field, the knowledge of different subjects through strategies related to interdisciplinarity. The initiatives range from the implementation of more flexible academic and curricular structures that lead to the integrated curriculum, as Torres (2000) well indicates to the epistemological interrelation between different areas of knowledge (Pedroza, 2006).

In the same way, the development of educational practices, at all levels, has been influenced by a world in constant transformation (Giddens, 2000). Changes that have had an impact on the profile of Secondary Education students in both public and private institutions. Students are increasingly heterodox, which, added to the uncertainty that teachers have when they are training them for professions of which there is still no evidence of their existence, hinders the teaching-learning process.

In order to understand the world around us, we tend to have a tendency to make connections between different areas of knowledge naturally. While the growing specialization of the professional world means that in secondary education learning is usefully compartmentalized into disciplines, our constantly changing world requires us to train students capable of combining disciplines in novel and creative ways. In summary "as knowledge and information multiply, critical thinkers must be able to integrate the perspectives of different disciplines to understand complex issues and ideas" (AA.VV., 2014a, p.2).

In this sense, the IB's commitment to interdisciplinary implementation was accompanied by concrete documentation that established the basic aspects that schools should take into consideration when putting these projects into practice. This documentation, in addition to having help material for teachers, is based on three publications published by the International Baccalaureate Organization:

- Promotion of interdisciplinary teaching and learning in the MYP. In which the minimum requirements are established, as well as the expectations for interdisciplinary work in each center (AA.VV., 2014a).
- Interdisciplinary unit planner. A help material in the form of a template to be used for the development of interdisciplinary planners. In which the curriculum planner model to be used is established (AA.VV., 2014b).
- The evaluation of the interdisciplinary unit plans. A planner evaluation model that allows teachers to self-evaluate and improve their planners by following some guidelines, as well as steps to follow clearly indicated in the document (AA.VV., 2014c).

Studies on interdisciplinarity and curricular integration are not very abundant in the current scientific panorama. Even so, we have identified that a large part of them are produced in public education, although private teaching jobs are also produced. These studies tend to focus on the interconnection needs of specific subjects and are developed at different levels and stages of education; they are abundant, those that focus on the secondary and college stages. (Annan-Diab, & Molinari, 2017; Beane, 2005; Blanco, Corchuelo, Corrales, and López, 2017; Fernández-Ríos, 2010; Lenoir and Hasni, 2010, 2016; Revel, 2013; Torres, 2000)

If we stop at the studies carried out on the International Baccalaureate, we can classify them into five groups:

- Studies focused on aspects related to the implementation of the Diploma Program such as Bunnell (2008) and Duarte (2013).

- Specific studies on the situation of the International Baccalaureate in specific countries, generally studies on the Diploma Program such as the works of Bagnall (1994, 1997, 2005), Belal (2017), Dabrowsky (2018).
- Studies that analyze the situation of learning competences such as critical or creative thinking, interculturality or international mentality, such as the texts by Demircioglu and Çakir (2016) and Poonoosamy (2018).
- Specific studies on the Primary Program (PYP) such as the work of Khairallah (2015).
- Of the few studies on the International Baccalaureate in which any reference to Interdisciplinarity appears, the work of Dickson, Perry and Ledger (2018) stands out, although this reference is rather implicit and is not the central theme of the research.

Moreover it is, in this sense, since there are few investigations that work on the subject of interdisciplinarity in the MYP, that it seems necessary and opportune to deepen its knowledge. The main objective of this work being to *present and analyze the difficulties encountered, by the Academic Coordination of the private centers of MYP, in the implementation of interdisciplinary projects*. Purpose, which we also seek to achieve, presenting improvement proposals that help to a more effective implementation in the curricula of these educational centers.

In this sense, the vision and opinion of the academic coordinators in the promotion and implementation of interdisciplinary experiences is vital for their correct development. In addition, understanding the difficulties they face, from the perspective of the pedagogical management of the centers, can help us to correct future errors or propose good interdisciplinary practices.

In any case, the intention of the International Baccalaureate Organization is to promote a curricular integration in its MYP program to promote an improvement in teaching-learning processes, and to prepare students to provide solutions to real problems through the development of the critical thinking and other useful and necessary skills to face the reality of an increasingly globalized and constantly changing world.

In this exploratory study, 29 academic coordinators from private centers, distributed by the five continents, have been surveyed.

Method

Although the quantitative approach is the most widely used (Alvira, 2002), we consider that, as it is an exploratory and basic research, and because little research has been carried out on Interdisciplinarity in the context of MYP, using a research process with mixed techniques is the most opportune for the realization of our study, since it is interested in understanding the facts and opinions given in a specific environment such as the MYP. Thus, we collect data and seek to explain the how and why of an event, and how it is experienced by its protagonists (Moscoso, 2017). In this sense, we try to understand fully the opinions of the subjects, object of study, and the reality in which a series of events takes place.

For this job, we have focused on identifying the difficulties felt by the Academic Coordination when implementing interdisciplinary projects at MYP. Thus, the fact of using a mixed approach for the study means that it must be taken into account that the

research process is continually fed and generates constant confrontations between the subjectivity of the participants, the reality of the object to be analyzed and the objectivity of the answers given in the information collection instruments. In this way, the study tries to take into account both the subjective and the objective when analyzing a reality that must be contextualized.

The population of the extensive (quantitative) study is made up of 596 Academic Coordinators from private MYP centers. The type of sampling used has been non-probabilistic, for convenience, since the school management teams had to authorize the coordinators to participate in the study. Finally, the sample was made up of 29 academic coordinators, representing the three IB regions (Americas; Africa, Europe, and the Middle East; and Asia-Pacific).

The intensive (qualitative) study through case studies is carried out in a school (Haut-Lac International Bilingual School, Switzerland), intentionally selected (non-probabilistic sampling), from case-type, due to its special relevance in the implementation of interdisciplinary projects, and for understanding that it allows us to collect very special and high quality data. In addition, from the case study, 29 semi-structured interviews were conducted with the academic coordinators participating in the survey.

The research process has been structured in four stages: preparatory, fieldwork, analytical, and informative, and has as instruments for collecting information, among others, observation, document analysis, survey, and interview.

Specifically, for this work, we have extracted the information related to the difficulties encountered by the Academic Coordination from both the questionnaire and the interviews, and which were transferred to data analysis tools and software such as SPSS and Nvivo.

The questionnaire, implemented through the *Survey Monkey* platform, integrates questions from previous instruments (AA.VV., 2014a; Ackerman, 1990; Larose and Lenoir, 1998; Prager, Morris, Currie, & Macleod, 2015; Pozuelos, Rodríguez, and Travé, 2012) and had a validation process through expert judgment by ten professors from the universities of Seville, Huelva and Extremadura. The instrument gives us individual results for each coordinator and coordinator. In the specific question on difficulties, the participants were asked to indicate the most relevant obstacle they encountered when implementing interdisciplinary projects at their center; the response options are: *Lack of support from the Management, Lack of interest from the students, Lack of involvement of the teaching staff, Lack of investment in material by the center, Inability to create schedules that respond to the demands of interdisciplinary work, Lack of time to prepare the interdisciplinary work, I have not had difficulty*. These options are based on the work of Ackerman (1990).

Apart from this closed question, the survey presents an open question: *What are the necessary aspects for the implementation of interdisciplinary projects?* Which offers us complementary information and clarifications on the difficulties encountered.

In the case study and in the semi-structured interviews, questions have also been posed that revolve around the difficulties and it has been possible to relate the responses to the results obtained from the survey. Furthermore, the interviews have allowed us to identify more difficulties that are specific and have helped us to understand better certain contextual aspects of private IB centers.

Results

The profile of the Academic Coordination is that of professionals who are experts in the implementation of the MYP and with extensive work experience, sometimes acquired in different centers with an international profile; as indicated by the Academic Coordinator of the International School of Lausanne, "having been able to work in countries such as China or Qatar before arriving in Switzerland has allowed me to better understand the socio-cultural realities not only of the centers, but also of the students." This allows us to offer results that describe and represent an overview of the opinions and difficulties that this figure of educational leadership presents in the face of the implementation of interdisciplinarity in their schools. In table 1, you can see some sociodemographic data of the Academic Coordination and, in table 2, the answers given to the question, *what difficulties have you encountered for the implementation of interdisciplinary projects in your center?* The data offered in table 2 are intended to be descriptive and do not allow or pretend to generalize the results.

Table 1

Sociodemographic characteristics of the Academic Coordination at MYP

	n (%)
Gender	Male = 11 (37.9)
	Female = 18 (62.1)
Age	23-30 years = -
	31-45 years = 19 (65.5)
	46-60 years = 8 (27.5)
	+ 60 years = 2 (6.9)
Years of Experience in Academic Coordination	- 5 years = -
	6-10 years = 2 (6.9)
	11-15 years = 7 (24.1)
	+ 16 years = 20 (69)
Years of Experience in International Teaching (IB)	- 5 years = -
	6-10 years = 1 (3.4)
	11-15 years = 5 (17.3)
	+ 16 years = 23 (79.3)
Academic degree	Degree = 7 (24.1)
	Master = 20 (69)
	Doctorate = 2 (6.9)

Table 2

What difficulties have you encountered for the implementation of interdisciplinary projects in your center?

	n (%)
Difficulties	Lack of Management support = 1 (3.4)
	Lack of student interest = 1 (3.4)
	Lack of teacher involvement = 7 (24.2)
	Lack of investment in material by the center = 4 (13.8)
	Inability to create schedules that respond to the demands of interdisciplinary work = 6 (20.7)
	Lack of time to prepare interdisciplinary work = 8 (27.6)
	I have not had difficulty = 2 (6.9)

It is observed in table 1 that a difficulty felt, by the Academic Coordination, is the lack of interest of the students (3.4%). In this sense, it should be noted that the students who work on these projects are between 11 and 16 years old, an age group marked by adolescence, in which these problems of discouragement and lack of interest are evident (Obiols and Di Segni, 2008). To help solve this, the Academic Coordination indicates, in the interviews, that many centers have faced this alleged lack of motivation of the students by proposing tasks and projects that generate interest among the student population (group work, topics related to the interests of the students, projects based on research competencies or final projects that allow students to share passions, such as creating explanatory videos, composing songs, etc.). This is indicated by statements such as “the student uses the Science and Physical Education classes to trace the changes that occur during an 8-week period. They record when they wake up, what they eat, how much exercise they do, what those exercises are, etc. For the science part, they measure how the body converts food into energy and how it applies to the exercises they chose” (Academic Coordinator of Amman International School, Jordan) or even “the students are involved in an incredibly successful interdisciplinary project in which they learn about migration, immigration and asylum seeking in Humanities and English. They then focus on the art of writing compelling narratives orally and in writing, as well as the art of successful interviewing. Then they take all this knowledge and skills and go to refugee camps to interview the refugees and use that information to write the migration narratives and present them in a TEDex style” (Academic Coordinator of Lahore Grammar School International, Pakistan).

The feeling of lack of support from the Management (3.4%) may be caused by the pressure that the Academic Coordinators have to develop these interdisciplinary projects in addition to the tasks of their position, in informal conversations with some Coordinators it was evident that, on occasions, the management of the centers gives initial support to the projects in order to meet the program requirements. However, this support is weakened when it comes to adjusting schedules and facilitating organizational aspects.

Lack of investment also appears as a difficulty (13.8%); this occurs, above all, in those interdisciplinary projects where the budget is forced due to projects based on outings to the environment, participation of external professionals in talks or information sessions, or the purchase of some specific expensive material for certain subjects, such as Sciences or Design.

In general, most of the responses that state that they encounter difficulties revolve around three issues:

- 1- Lack of or little involvement on the part of the teaching staff.
- 2- Inability to create schedules that respond to the demands of interdisciplinary work.
- 3- Shortage or lack of time to prepare interdisciplinary works, these last two answers are linked, one with the other.

Regarding the first difficulty encountered, it is interesting to observe the fact that teachers, in general, are usually reluctant to any change that involves a reconversion of their teaching strategies (and interdisciplinary work it is, without a doubt). Furthermore, this lack of motivation can also be given by the demands imposed by the center in terms of teaching hours, collaboration time, which in most cases are not accompanied by a salary increase or a restructuring of schedules. It is therefore understandable that involvement has a direct relationship with the motivation that teachers feel when implementing novelties.

In this way, the involvement and motivation of teachers depends on many factors that must be taken into consideration and, it is necessary to try to find the specific reasons why teachers seem to show lack of motivation, during the interviews carried out in the case study it was evidenced that "teachers have seen the arrival of interdisciplinarity as one more obligation to add to their already heavy teaching loads, which has caused an evident lack of motivation towards its implementation" (Academic Coordinator of Haut-Lac International Bilingual School, Switzerland). Thus, there is a "direct relationship between lack of time and the feeling of saturation" (Academic Coordinator of La Cote International School in Switzerland). The demands linked to the implementation of new proposals without being accompanied by specific teaching material that facilitate planning and provide ideas and examples that can be taken as an initial starting point, are seen as an added obligation.

Another aspect that can cause this lack of motivation of teachers is the lack of practice in the implementation of interdisciplinary experiences, the insecurity caused by the fact of facing a novelty and the concern of not knowing for sure if the work is being done in the right way. The fact that MYP is an international educational program means that there is a high movement of teachers who see in the profession an opportunity to enjoy international experiences in various countries, in this way, many young teachers show a high interest in joining to centers of this profile.

Likewise, it is important that teachers clearly understand the intention of these projects, as well as their advantages; without forgetting that they carry a series of obligations implicitly. "Teachers do not show great interest in participating in interdisciplinary projects because of the lack of understanding of them, it is difficult for us to maintain the loyalty of teachers so every year new teachers arrive who we have to train in some requirements and a program that needs time to really understand how it is structured, this is a cycle that does not seem to end" (Academic Coordinator of Aga Khan Academy, Nairobi).

Regarding the second difficulty, it is common for school hours to be created in such a way that any change in them generates great difficulties: compulsory teaching hours, extracurricular programs, faculty meetings, etc. And, in this sense, there are several answers obtained in the interviews that insist on the difficulty of adjusting schedules, “the biggest challenge we had when we designed the system was to find the time in the schedules, already overloaded, to have a structured and meaningful collaboration to identify opportunities to develop interdisciplinary projects” (Academic Coordinator of GEMS International School AL Khail, United Arab Emirates).

Interdisciplinarity requires schedules that facilitate synergies between teachers. Collaborative work seems to be crucial for the proper functioning of the projects according to the Academic Coordinators themselves. “The interdisciplinary program is effective when there is collaboration between the teaching staff and it becomes increasingly important. Teachers learn from each other and their skills are improved” (Academic Coordinator of Deledda International School, Italy). Planning, project monitoring, standardization of evaluations, all of these are stages that need enough time to be carried out. The inability to generate adapted schedules is, as evidenced by the responses obtained, a major difficulty. Presumably, private schools, as companies that they are, try to be efficient at the budgetary level, so they do not extend themselves in the hiring of teachers and, in this sense, teachers have few free hours, in their school hours, to dedicate them to coordination and collaboration. Thus, it is logical that the Academic Coordinators find it difficult to establish spaces for collaboration.

It is evident that the “time to explore other possibilities, as well as the will to change or modify the contents so that they can adjust to the demands of interdisciplinary projects. In addition, the fact that the very nature of MYP that allows students to choose their subjects in the last years of the program means that we have to offer a wide variety of them and, therefore, we have serious difficulties in balancing the schedules, which adds the addition of the aspects inherent to interdisciplinarity” (Academic Coordinator of Saint Dominic's Priory College, Australia).

The third difficulty confirms the need for the Academic Coordination to have the necessary time to plan and establish collaborative experiences; despite the fact that in the previous answers the Academic Coordinators affirm to allow time for collaboration, it is evident that this generates certain difficulties and more, when they are not trained for it. “Teachers are often too busy to sit down to develop the curriculum as a team and continue to teach individually and, on the other hand, I think we need more specific training in this regard” (Coordinator of Dar es Salaam International Academy, Tanzania).

This need for time, which may include other difficulties, is due to the very nature of interdisciplinary projects. Not only is it necessary to find enough time to plan projects, but also to monitor them, as well as for joint evaluation. The fact that for the correct development of interdisciplinarity we must have two or more teachers of different subjects makes it especially difficult to find free hours for various members of the teaching staff, especially when they belong to different departments.

It is evident that there are several aspects that are included in the feeling of lack of time. This is perfectly summarized in the following reflection by the Academic Coordinator of Haut-Lac International Bilingual School (Switzerland), when he indicates that: “we have great difficulties when it comes to finding time to collaborate. School schedules are already very heavy for teachers who, when discovering the demands of interdisciplinary projects, are immersed in the imperative need to find moments to discuss and plan said projects. At the same time, they must also proceed to evaluate the projects

in a collaborative way and there are not always agreements in the awarded grades, which means longer and tedious collaborations to be able to standardize evaluations and show the same understanding of the evaluation criteria” (Coordinator Academic of Haut-Lac International Bilingual School, Switzerland).

Discussion and conclusions

Based on the results obtained, it seems clear that five years after being put into operation, private centers continue to show difficulties when working on interdisciplinary projects. Despite having made great progress, the academic coordinators see how the projects do not take off in a systematic way and produce conflicts and disagreements among members of the educational community because they consider the projects as one more task to be carried out without noticing positive aspects in an immediate way.

The vision of the academic coordinators allows us to understand the difficulties faced by educational centers at an administrative level and professional demands; be aware of what it means to put into practice a new pedagogical vision at an organizational level that, on the other hand, is not an easy task.

It must be taken into account that the academic coordinators are ultimately responsible for the implementation of the interdisciplinary aspects in the centers, as well as for their evaluation. All the centers attached to the MYP are subjected to an evaluation every five years, in which a team of evaluators, with extensive experience in the implementation of the MYP, visits the school and evaluates the implementation of the curriculum in all its aspects. One of the essential points that are observed and analyzed throughout the evaluation visits are the interdisciplinary aspects and the way in which the schools implement them (for example, it is mandatory that all MYP students from all authorized centers enjoy at least one interdisciplinary experience in each course).

Despite the fact that the repercussions of interdisciplinary work seem to be positive in terms of teaching-learning processes, the existence of certain difficulties related to all centers in terms of the implementation of interdisciplinary projects has been evidenced.

In addition to analyzing them, it is the objective of this work to provide proposals for improvement that allow coordinators to structure interdisciplinarity in a way that provides all its benefits in the teaching-learning processes of each center.

Based on the difficulties encountered, we can structure as follows:

1- Lack of or little involvement on the part of the teaching staff. The proposals to deal with this problem are the following:

- *Creation of specific materials* that facilitate the implementation of interdisciplinary projects in the centers at different levels. The coordinators of different centers, both the respondents and those with whom informal talks have been held, echoed the lack of published material and the consequent difficulty in proposing ideas and finding links between subjects. If it is true that certain publishers are beginning to publish specific material on interdisciplinary work. The existence of these materials could also limit the hours of collaboration required, especially at the beginning of the process, as there would be starting points that would allow teachers to limit their meeting needs for project planning. This aspect could undoubtedly alleviate the

feeling of lack of motivation among teachers by providing didactic support in the initial planning of projects, as indicated by some Academic Coordinators (Jumeira Baccalaureate School, United Arab Emirates) by stating that “some publishers have taken a step forward by proposing textbooks with certain references to multidisciplinary links in their units; however, it would be very useful if they developed textbooks with complete interdisciplinary proposals.”

- *Foster collaboration networks*: between teachers from the same center, but also and, above all, between teachers from different centers. In this way, experiences and concerns could be shared. It is clear that these networks allow solutions and proposals to be put on the table to overcome the barriers and difficulties encountered, while facilitating the implementation of interdisciplinary projects, especially considering that the centers share a curriculum and a program, facilitating this way the synergies between professionals and trying to eliminate or in any case reduce the lack of involvement of teachers. In this ideal of professional collaboration are Martínez-Martín and Viader (2008) and Lavega et al. (2013) when the latter indicate that the teacher must also work as a team. Teaching teams can contribute, first of all, to overcoming the fragmentation of knowledge offered through the different subjects (p. 135)
- *Distribute projects equitably*: to avoid the natural tendency to generate interdisciplinary projects around the more Humanistic subjects simply because they have a more open and malleable curricular content, it is necessary to generate other proposals that start from the sciences, especially focused on technical and experimental problems. In short, avoid feelings of injustice in the distribution of tasks and make the development of interdisciplinary projects the responsibility of the faculty as a group.
- *Foster collegiality and creation of open spaces for discussion*. Encourage synergies between teachers by creating open spaces for informal discussion in the center where teachers can share concerns and ideas so that relationships between subjects are improved. The possibility of generating work networks, sharing concerns, discovering that other professionals are faced with the same difficulties and demands. The search for joint solutions, as well as the creation of work synergies, does nothing more than promote the motivation of the teaching staff.
- *Creation of a position of Interdisciplinary Coordinator*. Some coordinators indicate that the creation of this position has facilitated the task of supervising these projects. A faculty member who can, not only supervise the development of projects, but also promote discussions, train and guide teachers in this new educational task. Propose jobs, supervise evaluations and encourage collaborative work. This proposal would facilitate the support given to the teaching staff and would allow them to have a professional to turn to in case of doubts or need. This is the case of some centers such as Haut-Lac International Bilingual School (Switzerland) where a teacher is in charge of coordinating the projects in each MYP course.
- Have a *specific budget* for internal and external teacher training. Well, as Ackerman (1989, p.31) already indicated, “time, budget and schedules are three main pillars to take into account when implementing interdisciplinary aspects.” Thus, attending these trainings offered by the International Baccalaureate would allow breaking a first barrier by offering the theoretical-practical bases of interdisciplinary implementation to teachers. This fact would make it possible to respond again to this low motivation of teachers, which can also occur when having to face new aspects that cause insecurity and fear. The possibility of receiving external training and participating in professional development workshops has always been shown

to be an essential element in motivating teachers as it allows them to expand their knowledge and discover new ways of working. These trainings can be internal, through professional development sessions given by the Academic Coordinators themselves, external official trainings organized by the International Baccalaureate Organization and given by people in charge of training workshops expressly trained for this or even professional development sessions at the given centers by external professionals, online training in which teachers from various centers participate. In any case, the possibility of planning projects in advance would allow management teams to plan their budgets with enough time to meet specific expenses.

- *Develop educational competences in students:* moving away from pure content and trying to develop the different capacities that students must use to adapt and modify the sociocultural reality that surrounds them. In these competences, the reflection process plays a crucial role as it allows students to plan and manage their own learning process (Gonçalves, 2011). For this, it is important to promote interaction in the classrooms by offering teachers the possibility of creating curricula focused on competencies instead of content to avoid the traditional compartmentalization that hinders collaborative work by limiting the links and relationships between subjects. The competences understood as tools put in the hands of the students to be able to solve problems effectively and naturally instead of focusing on specific contents of each subject would facilitate collaborative work at all levels. Offering the possibility of being original, of leaving the usual and traditional planning, allowing teachers to focus on more creative aspects in their daily routine.
- *Continue bringing the classrooms closer to the day-to-day reality:* through the implementation of interdisciplinary projects, so it is necessary to invite the centers to continue dealing with real problems that motivate students to seek interdisciplinary solutions. Offer teachers the possibility of leaving the established guidelines and creating a curriculum related to their interests and the interests of the students. It is evident that the possibility of teaching what they like generates greater motivation, which leads to more positive interactions between students and teachers. So much so that new theories related to intelligence and learning (Gardner, 2012; Goleman, 2010; Walters, and Gardner, 2010), indicate that learning is not done as before, the interests of students are more complex and evolve, as well as social needs. In this sense, it is therefore necessary to adapt schools in terms of the implementation of their curricula and their relationship with the real world.

2- Inability to create schedules that respond to the demands of interdisciplinary work. The following proposals are aimed at optimizing schedules in a way that facilitates the implementation of projects:

- *Planning and creation of hours of collaboration* dedicated specifically to interdisciplinarity. This planning must be done before the start of the school year so that it is already integrated into the non-teaching hours of each teacher. A minimum of three collaborative meetings should be planned for the success of interdisciplinarity. A meeting at the beginning of the course for project planning, one during the implementation of the projects to be able to monitor them and solve possible difficulties encountered and a last one, once the projects are finished to be able to evaluate collaboratively and ensure alignment of the evaluated objectives.
- *Improve teachers' schedules:* a general concern lies in the shortage of hours dedicated to interdisciplinarity in most of the responses obtained from the Academic Coordinators, as well as in informal conversations. It is a general concern among teachers the need to collaborate, standardize content, modify proposals and,

above all, assimilate educational innovations that allow them to better understand the demands of these new demands at the teaching level; in short, that allows them a true professional development. It is not about lightening the teaching load, but about optimizing it.

- *Consider the requirements of Interdisciplinarity* as if it were an independent subject in terms of planning, development and evaluation instead of treating it as a solitary project that is carried out at a specific moment of the course and to which it is tried to adapt a certain number of hours that, in general, seem to be insufficient.

3- Shortage or lack of time to prepare interdisciplinary works. The following proposals are intended to offer ways to optimize the time dedicated to interdisciplinarity instead of adding time to the workload:

- *Integrate students* in the creation of interdisciplinary projects. It is clear that students need to feel responsible for the work they do. The possibility of having the students when planning projects makes them take ownership of them, increasing their motivation towards learning processes. The participation of the students in a way that helps planning through the contribution of ideas means that the teachers can count on support in terms of the search for ideas, and there are several studies that support this aspect (Pérez, Tabernero, López, Ureña, Ruiz, Capllonch, González, and Castejón, 2008; Álvarez, García, Gros and Guerra, 2006; Cortez, Nussbaum, Woywood, & Avarena, 2009; Lavega, Sáez de Orcáriz, Lasierra, and Salas, 2013).
- *Search for natural links in the existing curriculum* with the intention of optimizing work time and collaboration between teachers, it is important to analyze the existing curriculum at the center. In many cases, there are already links of a natural character that can be used for the planning and implementation of interdisciplinary projects without the need to create new content. Moreover, these natural links would allow students to understand better already created content. This possibility would allow teachers to use ready-made material to adapt to interdisciplinary projects rather than having to create new material with the consequent dedication and need for time. An example of this is a document prepared by the Academic Coordinator of Fairgreen International School (United Arab Emirates) in which he has vertically planned the implementation of interdisciplinary projects, seeking natural links with existing curricula and thus facilitating project planning.
- *Open the curriculum* to the educational community so that there is a centralized place where the center's curriculum can be consulted openly. The difficulty of interdisciplinarity in the lack of knowledge that teachers have of what happens in other classrooms and in other subjects. Free and easy access to curricular planning would facilitate the understanding of it and the encounter between what is taught and what is learned.
- Finally, *make concrete decisions about the best way to work on projects in each of the centers*, taking into account the reality of these, as well as the nature of the students and their concerns. A precise time structure, with clear regulations and expectations for both students and families, can allow the successful development of interdisciplinary projects, while helping students to reflect on the learning process and teachers to do so on the teaching process, having as a joint objective the intention to improve year after year, making use of the creative freedom that allows the IB curriculum development.

These proposals coincide with those that Holley (2009) indicates in his study when he states that “the results indicated that the implementation of interdisciplinary initiatives

is achieved not only through changes in how institutional work is organized and the facilities in which work is carried out, but also through concurrent changes in the institutional culture related to interdisciplinary efforts” (p.331), the changes referred to by the author are no more than those previously proposed in reference to the efforts to be made by the centers to adapt to the needs of interdisciplinary implementation.

Thus, the responses obtained confirm the theories of Ackerman (1989) regarding the importance of time allocated to interdisciplinary projects for their successful implementation.

Note

This work is part of the R&D project entitled "Anatomy of educational change: schools facing the challenge of pedagogical innovation - UHU-1256182"

References

- AA.VV. (2014a). *Promoción de la enseñanza y el aprendizaje interdisciplinarios en el PAI*. Cardiff, Gales: International Baccalaureate Organization.
- AA.VV. (2014c). *La evaluación de los planes de unidades interdisciplinarios del PAI*. Cardiff, Gales: International Baccalaureate Organization.
- AA.VV. (2014b). *Planificador de unidades interdisciplinarias*. Cardiff, Gales: International Baccalaureate Organization.
- Ackerman, D. B. (1989). Intellectual and practical criteria for successful curriculum integration. In H. H. Jacobs (Ed.), *Interdisciplinary curriculum: Design and implementation* (pp. 25-37). Alexandria, VA: Association for Supervision and Curriculum Development.
- Alvira, F. (2002). *Perspectiva cualitativa/perspectiva cuantitativa en la metodología sociológica*. México: McGraw Hill.
- Annan-Diab, F., & Molinari, C. (2017). Interdisciplinarity: Practical approach to advancing education for sustainability and for the Sustainable Development Goals. *The International Journal of Management Education*, 15 (2), 73-83. doi: 10.1016/j.ijme.2017.03.006
- Bagnall, N. (1994). *The International Baccalaureate in Australia and Canada (1980-1993)*. Tesis Doctoral. Melbourne: University of Melbourne. Retrieved from <http://hdl.handle.net/2123/817>
- Bagnall, N. (1997). The International Baccalaureate in Australia. *Critical Studies in Education*, 38 (1), 129-143. doi: 10.1080/17508489709556294
- Bagnall, N. (2005). The International Baccalaureate in Australia and New Zealand in the 21st century. *Change: transformation in education*, 8(1) 110-123. Retrieved from <http://hdl.handle.net/2123/4544>
- Beane, J. A. (1995). Curriculum Integration and the Disciplines of Knowledge. *The Phi Delta Kappa*, 76 (8), 616-622.

- Beane, J. A. (2005). *La integración del currículum*. Madrid: Morata.
- Belal, S. (2017). Participating in the International Baccalaureate Diploma Programme: Developing international mindedness and engagement with local communities. *Journal of research in international education*, 16 (1), 18-35. doi: 10.1177/1475240917702789
- Blanco, M. A, Corchuelo, B., Corrales, N. y López, M. J. (2017). Ventajas de la Interdisciplinaria en el aprendizaje. Experiencias innovadoras en la Educación Superior. *XI Jornadas Internacionales de Innovación Universitaria Educar para transformar*. (11-20) Retrieved from <https://pdfs.semanticscholar.org/b446/5a77a4e2befd1b40cf1929f5e4873a85e129.pdf>
- Bunnell, T. (2008). The global growth of the International Baccalaureate over the first forty years: A critical assessment. *Comparative Education*, 44 (4), 409-424. doi: 10.1080/03050060802481439
- Cortez, C., Nussbaum, M., Woywood, G., & Aravena, R. (2009). Learning to collaborate by collaborating: A face-to-face collaborative activity for measuring and learning basics about teamwork. *Journal of Computer Assisted Learning*, 25 (2), 126-142. doi: 10.1111/j.1365-2729.2008.00298.x
- Dabrowski, A. (2018). *Dilemmas of Global Citizenship Education in Australian International Baccalaureate Schools*. Tesis Doctoral. Melbourne: University of Melbourne. Retrieved from <http://hdl.handle.net/11343/218098>
- Demircioglu, S., & Çakir, C. (2016). Intercultural Competence of Students in International Baccalaureate World Schools in Turkey and Abroad. *International Education Studies*, 9 (9), 1-14. Retrieved from <http://www.ccsenet.org/journal/index.php/ies/article/download/55839/33580>
- Dickson, A., Perry, L. & Ledger, S. (2018). Impacts of International Baccalaureate programmes on teaching and learning: A review of the literature. *Journal of Research in International Education*, 17 (3), 240-261. doi: 10.1177/1475240918815801
- Duarte, G. (2013). *The International Baccalaureate Diploma program's impacting high school culture and climate*. Tesis Doctoral. Ann Arbor, MI: University of Michigan. Retrieved from <https://search.proquest.com/docview/1283226858>
- Fernández-Ríos, L. (2010). Interdisciplinaria en la construcción del conocimiento: ¿Más allá de Bolonia? *Innovación Educativa*, 20, 157-166. Retrieved from <http://hdl.handle.net/10347/5005>
- Gardner, H. (2012). *La educación de la mente y el conocimiento de las disciplinas*. Barcelona: Paidós.
- Giddens, A. (2000). *Modernidad e Identidad del Yo. El yo y la sociedad en la época contemporánea*. Barcelona: Península.
- Goleman, D. (2010). *La práctica de la inteligencia emocional*. Argentina: Kairós.
- Gonçalves, S. (2011). *La reflexión sobre el proceso de aprendizaje propio: estrategias para favorecerla*. III Congreso Internacional UNIVEST. Retrieved from <https://dugi-doc.udg.edu/handle/10256/3719>

- Holley, C. (2009). Interdisciplinary strategies as transformative change in Higher Education. *Innovative Higher education*, 34 (5), 331-344.
- Khairallah, L. (2015). *The integration of vertical alignment in teacher collaborative planning in the international baccalaureate primary years program: two qualitative case studies in Europe and the United States*. Tesis Doctoral. Boston, Massachusetts: Northeastern University. Retrieved from <http://hdl.handle.net/2047/D20197193>
- Larose, F. y Lenoir, Y. (1998). La formation continue d'enseignants du primaire à des pratiques interdisciplinaires: résultats de recherches. *Revue de Sciences de l'éducation. Interdisciplinarité et formation à l'enseignement primaire et secondaire*, 24 (1), 189-228. doi : 10.7202/031967
- Lavega, P., Sáez, U., Lasierra, G. y Salas, C. (2013). Intradisciplinarietà e Interdisciplinarietà en la adquisición de competencias: estudio de una experiencia de aprendizaje cooperativo. *Revista electrónica universitaria de formación del profesorado*, 16 (1), 133-145. Retrieved from <http://revistas.um.es/reifop/article/view/179491/151061>
- Lenoir, Y. & Hasni, A. (2010). Interdisciplinarity in Quebec schools: 40 years of problematic implementation. *Issues in Integrative studies*, 28, 238-294.
- Lenoir, Y. & Hasni, A. (2016) Interdisciplinarity in Primary and Secondary School: Issues and Perspectives. *Creative Education*, 7 (16), 2433-2458. Retrieved from https://www.scirp.org/pdf/CE_2016102017124774.pdf
- Martínez, M. y Viader, M. (2008). Reflexiones sobre aprendizaje y docencia en el actual contexto universitario. La promoción de equipos docentes. *Revista de Educación*, número extraordinario, 213-234. Retrieved from <http://www.educacionyfp.gob.es/dam/jcr:fae28889-7e13-4183-a638-63ed90491508/re200809-pdf.pdf>
- Moscoso, J. N. (2017). Los métodos mixtos en la investigación en educación: hacia un uso reflexivo. *Cadernos de Pesquisa*, 47 (164), 632-649. doi: 10.1590/198053143763
- Obiols, G. y Di Segni, S. (2006). *Adolescencia, posmodernidad y escuela*. Buenos Aires: Ediciones Novedades Educativas.
- Pedroza, R. (2006). La interdisciplinarietà en la universidad. *Tiempo de educar*, 7 (13), 69-98. Retrieved from <https://www.redalyc.org/pdf/311/31171304.pdf>
- Pérez, A., Tabernero, B., López, V. M., Ureña, N., Ruiz, E., Capllonch, M., González, N. y Castejón, J. (2008). Evaluación formativa y compartida en la docencia universitaria y el Espacio Europeo de Educación Superior: cuestiones clave para su puesta en práctica. *Revista de educación*, 347, 435-451. Retrieved from <http://www.educacionyfp.gob.es/revista-de-educacion/numeros-revista-educacion/numeros-anteriores/2008/re347/re347-20.html>
- Poonosami, M. (2018). Third culture kids' sense of international mindedness: Case studies of students in two International Baccalaureate schools. *Journal of research in international education*, 17 (3), 207-227. doi: 10.1177/1475240918806090
- Pozuelos, F. J., Rodríguez, F. P. y Travé, G. (2012). Un enfoque interdisciplinar en la Enseñanza universitaria y el aprendizaje basado en la investigación. Un estudio de caso en el marco de la formación. *Revista de Educación*, 357, enero-abril 2012,

561-585. Retrieved from <http://www.educacionyfp.gob.es/dam/jcr:eb070e5e-b51e-4275-a80c-6ce126e3c441/re35725.pdf>

- Prager, K.; Morris, S., Currie, M., & Macleod, K. (2015). *Exploring Interdisciplinarity. Summary report of DICE at the James Hutton Institute*. Scotland, UK: The James Hutton Institute.
- Revel, A. (2013). La interdisciplina, entendida como estrategia metodológica de integración de contenidos. *Ciencias Sociales y Educación, II* (4), 21-40. Retrieved from https://revistas.udem.edu.co/index.php/Ciencias_Sociales/article/view/785
- Torres, J. (2000). *Globalización e interdisciplinariedad: el currículo integrado*. Madrid: Morata.
- Walters, J., y Gardner, H. (2010). *Inteligencias Múltiples. La teoría en la práctica*. Barcelona: Paidós.

Receipt date: 01/18/2020

Revision date: 06/08/2020

Acceptance date: 07/17/2020