

# Collaborative Strategies for Professional Development of High School Teachers: Groupware Co-Design for Learning Experience Design

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**Abstract.** *Educational planning, and consequently, the production of educational materials, are considered essential for teachers. These artifacts are commonly adapted; however, by factors still to be investigated, are used improvised, or just copied and paste the planning used the previous year to comply with a school standard. The present work aims to contribute to a better understanding of teachers' planning practices, to influence the learning experience design supported by groupware to be integrated into teaching practice, to promote professional development.*

**Resumo.** *O planejamento educacional e, conseqüentemente, a produção de materiais educativos são considerados essenciais para os professores. Esses artefatos são comumente adaptados; no entanto, por fatores ainda a serem investigados, são usados improvisados, ou simplesmente copiados e colados no planejamento utilizado no ano anterior para cumprir um padrão escolar. O presente trabalho visa contribuir para uma melhor compreensão das práticas de planejamento dos professores, para influenciar o design da experiência de aprendizagem apoiada pelo groupware para ser integrado na prática de ensino, afim de promover o desenvolvimento profissional.*

## 1. General Information

The activity of planning current in the teaching practice is one, among several tasks, that are assigned to teachers in their teaching activity. Activities such as students orientation and follow-up, participation in the improvement and implementation of the political pedagogical project of the educational institution, students evaluation , work and pedagogical activities are necessary for their professional performance.

According to [John 2006], there have been attempts to train and reformulate teaching practices involving classroom planning skills. Such improvement initiatives start from new paradigms imposed indirectly by students through the use of digital technologies in the classroom, providing new challenges for teachers in the adoption of new teaching methodologies [Dalziel et al. 2013]. However, in Brazil, for example, one third

1/3 of the teacher's total workload is allocated to studies, research and class preparation activities [de Educação 2015].

Gomes and Silva [Gomes et al. 2016] uphold that planning is essential for the effective practice of teaching with technologies. These resources typically have high acquisition costs and often do not provide the equivalent return on investments made in terms of learning impact. There are other obstacles and barriers that teachers face to insert technologies into their practices: insufficiency technological resources mastery and low familiarity on the use of digital artifacts in their teaching environments [Gomes et al. 2012]. The authors [Gomes et al. 2016] report that studies are still needed on the relationship between planning practices and teaching by computational resources. In concomitant with efforts to improve classroom practice by the teacher, a study area called Learning Design (LD) has been highlighted. The LD is decided as a human activity that aims to plan learning activities, learning units or learning environment [Koper 2006], which can be supported by information and communication technologies, with the use of digital artifacts by the teacher with the students.

## **2. Plan to incorporate technologies in teaching**

Researches over time have shown in its results that there are several reasons for teachers to carry out their activities in a collaborative way, thus not predominating the isolated work culture; Collaboration allows beginning teachers to learn from each other. That is, there is learning among different generations of teachers, allowing a valuable exchange of experience from veteran teachers with beginning teachers [Vangrieken et al. 2015]; It will enable the promotion of innovation and support to deal with the complexity of the teacher's work [Brouwer 2011]; Promoting more exceptional communication among teachers [Egodawatte et al. 2011], among other reasons.

### **2.1. The planning activity**

The traditional process of learning involves students and teachers within the same classroom, confined, and with the classic didactic materials [Koper and Tattersall 2005]. However, in the last few years, technology has been globally implemented in many areas of education, making itself evident and standing out among researchers and teachers. Among the results of these efforts is the transformation of educational materials and how they are planned, developed, distributed and evaluated [Balakrishnan et al. 2016].

Educational planning, and consequently the production of educational materials, are considered essential for teachers. These artifacts are commonly adapted, however, by factors still to be investigated, are used improvised, or just copied and paste the planning used the previous year in order to comply with a school standard. [Fusari 1990], partially ignoring the technological resources available [Conole 2009]. Also, [Isotani et al. 2009] it was already pointed out the adversities related to interoperability, pedagogical preferences and compatibility of digital artifacts existed among learning environments.

From the above-mentioned problems, [Fusari 1990] defines teaching planning as a collaborative, "radical", "rigorous" process, which the teacher assumes as a critical activity toward work as a teacher. According to [Saviani 2018] (apud [Gomes et al. 2016] society is increasingly heterogeneous, complex, requiring more realistic teaching situations, that has a real impact on learner and teachers' lives.

However, in addition to the requirements, as mentioned above, the proposals for adopting practices supported by information and communication technology (ICT) have ignored the students and teachers contexts, unaware of their real needs [de Sousa Monteiro et al. 2015]. [Gomes et al. 2016] indicate the existing of many benefits in adopting design techniques to create new learning experiences, given the adversities presented in the text above. The didactics with the use of appropriate technologies and methods can have a high level of complexity as the expository presidential classes, even so, it is possible to plan experiences with the ICTs inside or outside the classroom, in a transparent and integrated manner to the most varied devices [de Araujo 2003]. Participatory Design of Environment to Support Learning Experiences Design: Professional Development of Collaborative Skills with Teachers of High School.

### 3. Expected Results

The general objective of this research is to analyze the development of collaborative planning skills from learning experience design, in the process of the co-operative collaborative system to support the teaching activity. How they can allow them to consider the uses of artifacts better and build artifacts with future users.

In this sense, the central question that guides this thesis project is: How does a groupware promote the effective development of classroom planning activity among high school teachers, based on their participation in a continuous process of codesign?

As specific objectives, we propose describe the instrument system that occurs in the activity of collaborative planning of classes carried out by teachers at the basic level of secondary education; Describe the evolution of the instrument systems that occurs in the activity of collaborative planning of classes carried out by teachers in the basic level of secondary education during a process of co-creation with future users; Analyze the emergence of framework strategies that promote collaborative class planning efficiency within a participatory design process with high school teachers; To create a collaborative system to support classroom planning activity with the participation of future users; Evaluate the effectiveness of the proposed collaborative system as mediator of the classroom planning practice; Analyze the effectiveness of the collaborative system to promote the development of classroom planning skills.

The studies carried out have demonstrated the use of technologies to support the teacher in the act of planning their classes in a very simple way, only with regard to the research of auxiliary contents, integrating media and technologies to some extent already available. The present work believes in contributing to a better understanding of teaching practices, intending to influence the elaboration of a collaborative system of class planning. That integrates and contributes to a teaching practice more adequate to the current requirements of educational training, even traditional, based on innovation in the analysis of the context concerning the general references used here.

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