

**RESEARCH** 

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# CURRICULAR DESIGN, A TOOL FOR EDUCATIONAL ACHIEVEMENT

# EL DISEÑO CURRICULAR, UNA HERRAMIENTA PARA EL LOGRO EDUCATIVO

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## **ABSTRACT**

The purpose of writing this article is to demonstrate the impact of the development of a correct curricular design as a structural tool in the educational teaching process. The importance of the management and application of educational processes understood as methodologies, strategies and teaching techniques are an initial part of this work; It also highlights the need to improve educational quality in institutional systems, through teaching practice with updated resources and according to the management and compliance of objectives and programmatic content in the classroom. The different educational models are then stressed, from which an educational system is structured, which in its essence should seek the application of teaching processes as methodological strategies, application of resources with a critical and proactive development approach and with the use of technological tools that facilitate this educational process. The current role of the teacher and the role played by the student are a fundamental part of the research carried out, which indicates the updating and educational reform that has been implemented as a global policy for the advancement and development of education.

**KEY WORDS:** Curricular Design - Educational Processes - Pedagogical Models - Program Contents - Methodological Strategies - Education - Teaching Techniques.

#### **RESUMEN**

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La finalidad de redactar este artículo es evidenciar la incidencia que tiene la elaboración de un correcto diseño curricular como herramienta estructural en el proceso de enseñanza educativa. La importancia del manejo y aplicación de procesos educativos entendidos como metodologías, estrategias y técnicas de enseñanza forman parte inicial del presente trabajo; además se pone de manifiesto la necesidad del mejoramiento de la calidad educativa en los sistemas institucionales, a través de la práctica docente con recursos actualizados y acorde al manejo y cumplimiento de objetivos y contenidos programáticos en el aula de clase. Se recalcan posteriormente los diferentes modelos educativos de los cuales se va estructurando un sistema educativo que en su esencia debe procurar la aplicación de procesos de enseñanza como estrategias metodológicas, aplicación de recursos con un enfoque de desarrollo crítico y propositivo y con el uso de herramientas tecnológicas que faciliten dicho proceso educativo. El papel que tiene actualmente el docente y el rol que cumple el estudiante forman parte fundamental de la investigación realizada, con lo cual se señala la actualización y reforma educativa que se viene implementando como política mundial para el adelanto y desarrollo de la educación.

**PALABRAS CLAVE:** Diseño Curricular - Procesos Educativos - Modelos Pedagógicos - Contenidos programáticos - Estrategias metodológicas — Educación — Técnicas de Enseñanza.

# O DESENHO CURRICULAR, UMA FERRAMENTA PARA O LOGRO EDUCATIVO

## **RESUME**

A finalidade de relatar este artigo é evidenciar a incidência que tem a elaboração de um correto desenho curricular como ferramenta estrutural no processo de ensinamento educativo. A importância do manejo e aplicação de processos educativos e técnicas de ensinamento formam parte inicial do presente trabalho; ademais manifesta a necessidade do melhoramento da qualidade educativa nos sistemas institucionais, através da pratica docente com recursos atualizados de acordo com o manejo e cumprimento de objetivos e conteúdos programáticos nas classes de aulas. Se recalcam posteriormente os diferentes modelos educativos dos quais se vão estruturando um sistema educativo que em sua essência deve procurar a aplicação de processos de ensinamentos como estratégias metodológicas, aplicação de recursos com um enfoque de desenvolvimento crítico e propositivo e com o uso de ferramentas tecnológicas que facilitem tal processo educativo. O papel que tem atualmente o docente e o papel que cumpre o estudante formam parte fundamental da investigação realizada, com o qual se assinala a atualização e reforma educativa que vem implementando como política mundial para o adianto e desenvolvimento da educação.

**PALAVRAS CHAVE:** Desenho curricular – Processos Educativos. Modelos Pedagógicos – Conteúdos programáticos – Estratégias metodológicas – Educação – Técnicas de Ensinamentos

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#### 1. INTRODUCTION

The present investigation has as a relevant role the importance of the structuring of the curricular design suitable for the application of the educational processes in the classroom; this is argued as the recurrent need that currently exists to improve the educational quality in each of the educational levels (Casanova, 2015), this praxis points out the integral formation of critical, reflective and propositive human beings; based on a flexible curricular axis and adaptable to the educational needs of the environment with the application and use of didactic resources that implement the student activity as a fundamental axis of the process (Sanchez, 2015) , the curriculum design is framed in its two aspects: scientific and educational, defining in its scientific approach as the realization of plans and programs of study that sustain the programmatic contents so that they can represent the cognitive domains within the learning process; On the other hand, the educational focus emphasizes the qualities and skills to be achieved by students with the participation of the teacher as a facilitator of teaching (Huffman, 2016).

The need to implement technological tools such as teaching methodological strategies currently make teachers seek the participation of students with the use of interactive material, developing in them the use of collaborative tools and interaction platforms with which the conceptualization of contents and the practical application of new computer resources are carried out (Villalta, 2015).

All curricular innovation corresponds to changes and official proposals of the pedagogical advance, the same that protects the use of all material, technological and audiovisual resources that advance the progress and achievement of the educational objective, this approach has its foundation in the sociocultural and economic field of the medium; the recognition of the conditions in which this process takes place must be taken into account; since the fulfillment of the academic advances depend in a great way on the infrastructure and resources that each institution possesses, these aspects are not relevant, but they are elements of great importance for the good development of the educational process (Hernandez, 2016). The research work has as one of its structural axes the evaluation process and its praxis in the classroom (Hernandez, Farfan, & Garcia, 2015), the attitudinal change on the part of the teachers when reviewing academic contents is fundamental, the evaluation process becomes permanently a part of the class planning and in each one of the programmed contents; based on the fact that Education is an organized and systematized activity in search of the improvement and advancement of the human being (Perez, 2015); The curriculum based on skills and competences is one of the approaches of this work, it is clear that for this element of education to contribute to the teaching process, it must have well-structured curricula, which must be elaborated with the contents appropriate to the age and grade that the student is studying, the contents should be flexible and readjust able to the needs of thinking that means and with the help of technological resources as didactic tools of the teaching process (Komba, 2015).

# 2. METHODOLOGY

The research work has a mixed approach, because qualitative and quantitative methods are applied within its process.

Quantitative because an educational reality is analyzed with the help of a theoretical framework and Qualitative because numerical data are obtained that are analyzed, based on population and sample, which are later part of the verification of the hypothesis and the relationship of the variables. The level of research covers several aspects such as:

Descriptive; because it helps to find a solution to the problem through the structuring of the questions with which the field research is evidenced. Explanatory; because it allows a structured analysis to determine the concordance between the variables and their level of incidence.

The development of this research is carried out taking into account that it is of an educational nature, therefore, the survey method is applied with its respective instrument, which is the questionnaire

The survey that is carried out contributes to determine the degree of incidence that the curricular design has in the application of the educational processes in the classroom, which evidences the performance in the teaching process, taking advantage of the methods, techniques and didactic tools for said effect.

#### 3. RESULTS

The incidence of the curricular design with the educational processes is evident in the results of this investigation, being this a causal for the academic performance of the students, reason why, it is feasible to take actions to overcome this problem; with the implementation of several curricular resources among which can be named: the elaboration of an integrated curriculum, which focuses on the student's needs, making them the main actors of their learning (Costley, 2015).

It is essential that teachers make an attitudinal change in terms of the management and application of teaching processes, taking into account that each student is a different world and needs to be evaluated continuously with current methodologies and flexible learning techniques (War , 2015); surely the structural part of the curricular design is the planning, this means the preparation of the theoretical and supported planning of the activities that determine the development of the educational process (Aranda, 2016).

It is important that the atmosphere or climate of the classroom is conducive to the student to feel comfortable and mentally motivated so that the educational objective is fulfilled, since it is based on the foundation that these factors influence and favor the academic performance; it also takes into account the use of time as another relevant factor in the teaching process (Gonzalez & Oriol, 2016) , that is, the time that must be taken for academic improvement does not have to be subject only to the amount of content factor but to elements such as the planning that must be

taken for the execution of each activity, especially in the classroom (Mora, Garcia, & Molina, 2016). It becomes fundamental that the teacher understands that not only the intrinsic motivation is the adequate, but also the external aspect becomes relevant, since it is not the fact of working in the classroom that is motivating, but also the use of more active and playful strategies help the student to be motivated for their learning (Zyngie, 2015).

It is clear that the best motivational element in teaching is teamwork because participation and cooperation among students is fostered, in addition the development of student criticality is obtained, and the teacher can opt for the problem-based learning methodology (Mendez, 2015). The role of the teacher according to the Latin American government policies is to be a guide in the teaching process, so it is evident the continuous updating and professional improvement (Reimers, 2014), this implies establishing institutional regulations in which the preparation and execution of new methodological strategies is preponderant for the achievement of objectives (Maciel de Oliveira, 2015); The effectiveness of the teaching work with the adequate use of resources results in the student's educational satisfaction, which is considered as the level of assessment of the teaching process (Garrido & Del Valle, 2015). The performance in the classroom must be carried out taking into account aspects such as the conceptualization of knowledge through research, the analysis of content and the relevance that should be given to the criticality of students, these elements contribute to the development and advancement of the programs of study (Bennett, Athanases, & Wahleithner, 2016).

It is necessary to undertake collaboration and participation programs among teachers, so that in these periodic meetings that are usually established at the beginning of each academic year teachers who are immersed in the different learning areas, establish the parameters of organization, planning and execution. of the curricula as well as of the programmatic contents that will be taught; leading to the same style of teaching praxis with the same methodologies and in collaboration with the available resources, making this teaching interaction the path to achieve educational goals and objectives (Krichesky, 2016).

As part of the current educational process, the use of the technological resource is included, in which the teacher becomes a fundamental pillar as mediator and agent of knowledge. Teachers have to be equipped with these pedagogical and technological tools to accept the need for change (Tolchinsky, 2014). The use of new technologies becomes the new "invisible pedagogy" in the forms of active work with shared activities between the teacher and the student (Neil, 2016), they become a fundamental element in all systems and educational levels as a state policy, ICT should be implemented as an educational tool for the intellectual and responsible development of students (Sosa, 2015) . The competences of the teacher are then linked with the so-called "pedagogical suitcase", in which this technological resource is included as part of the educational process, the synergy of contents with the use of virtual platforms and interactive software, allows both the teacher and the student to work dynamically and with responsibility criteria since knowledge is formed to a large extent by the student (Quinteros, 2016).

The context of educational quality is discussed as an established standard for the improvement of education as a multidisciplinary axis now related to the use of new

technologies as part of the educational standard required at all levels of study (Suarez & Pineda, 2015).

Therefore, we must be aware that an educational institution may have changes in its pedagogical practices, based on the commitment of the educational community to accept this challenge that makes the curriculum more flexible and meets the needs of the environment, improving the educational processes for a better methodology of teaching and obtaining educational achievements (Norris & Soloway, 2016).

It is important that at the end of each content treated it is established as part of the process to the evaluation, the same that evidences the level of progress of teaching, that is, the achievement obtained and to what extent it was made (Mendoza, 2014), nevertheless, the evaluation must have certain elements so that it is real, it must have objective validity, validity of process and validity of result; in this way it becomes a reliable tool that qualitatively and quantitatively qualifies the work done (Huang & Hu, 2015).

It is necessary to promote vocational training as teachers, the educational reform with changes in form and substance, to modify the plans and programs of study with the use of flexible strategies with teacher reflection and student acceptance (Rivera, 2014), this will achieve that the educational process is carried out in the best terms and with the use of didactic tools according to the needs of the environment, the motivation in the assignment of roles and collaborative activities improve the educational quality in each institution (Burenkova, 2015).

#### 4. DISCUSSION

The approach of the present work establishes the interrelation between the curricular design and the application of the educational processes, being this principle the structure of the work in the classroom. The teaching update is one of the predominant factors for the achievement of the teaching process, the use and application of new methodological strategies with the use of didactic tools and a correct planning of contents make the knowledge is easily assimilated and at the same time the students become critical and proactive human beings.

The application of group participation techniques allows the student to be part of a collaborative process and their performance becomes more formal; it is achieved that each member of the working group contributes with his ideas and criteria, thus achieving to conceptualize the proposed contents and build their own knowledge.

Each element that is part of the educational curriculum plays an important role in obtaining achievements and objectives, so it is necessary to have a flexible and adaptable curriculum to the realities of the environment; One must be very careful with the contents to be taught, select the skills with performance criteria (the "knowhow" based on knowledge and with the ability to solve a problem), viable for each degree of work, their methodological strategies must have a logical sequence, the same that is applied according to a pedagogical model established as an institutional work axis; the resources are applied with a suitable use, not to cover a lot of them. but what is just and concrete; so that the teaching process can show the indicators of achievement.

The inclusion of new technologies is part of the teaching as a tool of interactivity between the teacher and the student, with its use the active participation of the student who takes on new responsibilities is obtained, since the execution of works through the virtual platforms and the use of interactive software awaken the field of research, the main element when building knowledge.

Creating participatory work environments in the classroom leads to student motivation, a relevant aspect for the development of skills and ultimately the achievement of objectives.

#### 5. CONCLUSIONS

Teachers have to be in continuous updating of knowledge, immersed in the acquisition, implementation and use of new methodological proposals for the teaching process, thus achieving the easy and correct assimilation of contents in the students.

The correct planning of contents, the application of methodological strategies and the use of new technologies are a structural part of a good curricular design, with the use of these elements it is possible to motivate the student to become participatory and to build his learning.

The institutional pedagogical proposal must be socialized with all the teachers so that in all the subjects the same didactic method of teaching is carried out.

Student participation should be the structural axis for the conceptualization of contents and thus build their own knowledge with the help of appropriate didactic tools and the use of ICT.

The teacher should seek permanent evaluation to demonstrate the progress and achievement of the educational process, thus being able to take the necessary corrective measures and avoid mismatches of knowledge among students, that is to say, that all have to go hand in hand in what concerns to the assimilation of knowledge and development of skills.

#### 6. REFERENCES

- Abraham, M. (2007). *Consideraciones sobre la evolución del profesor de la posmodernidad.*
- Addine, F. (2000). *Diseño Curricular*. Recuperado de <a href="http://ftp.ceces.upr.edu.cu/centro/repositorio/Textuales/Libros/Diseno Curricular Fatima Addine/Diseno Curricular Fatima Addine.pdf">http://ftp.ceces.upr.edu.cu/centro/repositorio/Textuales/Libros/Diseno Curricular Fatima Addine.pdf</a>
- Ahumada, P. (2001). Estrategias y procedimientos para una evaluacion autentica de los aprendizajes
- Añorga. (1997). Curriculum y Diseño Curricular.
- Aranda Barradas, J. S.; Salgado Manjarrez, E. (2005). El diseño Curricular y la Planeacion Estrategica. *Innovacion Educativa*, *5*(26), mayo-junio, 25-35.
- Ausubel. (1976). Revista de Investigacion Psicologica. In *Estrategias Orientadoras del Aprendizaje.* La Paz: Edicion 2010.

- Ausubel. (2002). Adquisicion y Retencion del Conocimiento.
- Barriga, D. (1996). *Metodologia de Diseño Curricular para Educacion Superior*. Trillas.
- Bartolome, A. (2011). *Recursos tecnologicos para el aprendizaje.* San Jose de Costa Rica: Universidad Estatal a distancia.
- Bennett, L., Athanases, S., & Wahleithner, J. (2016). Teachers' Conceptions of the Promise and Challenges of Conducting Classroom Inquiry. *Action in Teacher Education*, *38*(1), 49-69
- Burenkova, O.; Arkhipova, I.; Semenov, S.; Samarenkina, S. (2015). Motivation within Role-Playing as a Means to Intensify College Students' Educational Activity. *International Education Studies*, 8(6), 211-216
- Casanova, M. (2012). El Diseño Curricular como factor de calidad educativa. *REICE. Revista Iberoamericana sobre Calidad, Eficacia y Cambio en la Educacion,* 10(4), 6-20.
- Colectivo de Autoes CEPES. (2000). *Tendencias Pedagogicas en la realidad educativa actual.* Torija, Bolivia: Editorial Universitaria, Universidad Juan Misael Saracho
- Coll, C. (1990). Constructivismo e ideologia. *Lecciones de la Reforma Curricular Española*. Madrid.
- Córica, J. (2009). *Diseño Curricuylar y Nuevas Generaciones.* Mendoza: Editorial Virtual Argentina.
- Costley, K. (2015). Research Supporting Integrated Curriculum: Evidence for using this Method of instruction in public school classrooms. *Running Head: Integrated Curriculum,* 16.
- De Benito, B. (2000). *Posibilidades educativas de la "webtools"*. Mallorca: Universitat de Les Illes Balears.
- Delors, J. (1997). *Informe a la UNESCO de la Comision Internacional para el siglo XXI.* Mexico.
- Diaz Barriga, A. (1994). *El Curriculo Escolar, surgimiento y perspectivas.* Buenos Aires: Segunda Edicion.
- Diaz Barriga, F. (1996). *Metodologia del diseño curricular para la educacion superior.*México: Edit. Trillas.
- Ministerio de Educación. (2013). *Adaptaciones a la Actualizacion y Fortalecimiento Curricular de Educacion Basica.* Quito.
- Ministerio de Educación. (1997). Plan Decenal de Educacion. Quito.
- Ministerio de Educación. (2010). *Actualizacion y Fortalecimiento Curricular dela Educacion General Basica*. Quito.
- Ministerio de Educación. (2014, marzo 11). Acuerdo ministerial. *Acuerdo 041-14 Registro Oficial*. Quito, Pichincha, Ecuador.
- Freire, P. (2015). *Pedagogia dos sonhos possíveis.* São Paulo: Editora Paz e Terra.
- Garcia, R. (1998). Internet en el contexto de la comunicación multimedia: un instrumento para el desarrollo científico en educación. *Fuentes: Revista de la Facultad de Ciencias de la Educación*, 1, 177-200

- Garrido, Mª J., & Del Valle, Mª del V. (2015). Resultado del Proceso Educativo: el papel de los estilos de Aprendizaje. *Educación XX1: Revista de la Facultad de Educación, 18*(2), 323-349
- Gimeno, S. (1999:88). *El Curriculum, una reflexion sobre la practica.* Madrid: Ediciones Morata.
- Gonzalez, L., & Oriol, X. (2016). The relationship between emotional competence, classroom climate and school achievement in high school students. *Culture and Education*, *28*(1), 130-156.
- Guerra, F. (2015). Capacitacion e Innovacxion Docente. *El Investigador Revista Tecnologico cientifica*, 7-19.
- Hernandez, B. J. (2016). Trabajo por Proyectos en el aula de Ciencias deSecundaria; Tensiones Curriculares y Resoluciones Docentes. *Revista Mexicana de Investigacion Educativa*, 141-165.
- Hernandez, J., Farfan, J., & Garcia, J. (2015). Autoevaluacion del maestro con respecto al conocimiento empirico que tiene del diseño curricular. *Revista Iberoamericana de Produccion Academica y Gestion Educativa*, 4-14.
- Hernandez, C. (2008). Metodologías de enseñanza y aprendizaje en altas capacidades. Superdotación: Realidades y formas de Abordarlo.
- Herrera Luis, M. A. (2008). *Tutoria de la Investigacion Cientifica.* Ambato: Empresdane Graficas.
- Huang, X., & Hu, Z. (2015). On the Validity of Educational Evaluation and Its Construction. *ERIC: Higher Education; Postsecondary Education*, 99-105.
- Huffman, D. (2016). Curricular design from a scientific perspective. *Curriculum Programming*, 20.
- Izquierdo, E. (2000). *Planificacion Curricular y Direccion del Aprendizaje.* Loja: Imprenta Cosmos.
- James, M. (2007). Learning how to Learn. Londres.
- Jaramillo Echeverri, L. G. (2003). ¿Qué es epistemología. *Cinta de Moebio. Revista de Epistemología de Ciencias Sociales*, nº 18
- Komba, S. (2015). Reflections on the Implementation of Competence Based Curriculum. *Journal of Education and Learning, 4*(2), 73-80
- Krichesky, G. (2016). Teacher Collaboration as a Factor for Learning and School. *Red de Revistas Cientificas de Educacion RERCE*, 11-23.
- Maciel de Oliveira, C. (2015). Analisis y Valoracion de las necesidades de Formacion de Docentes. *Educacion del siglo XXI*, 16-24.
- Marí Molla, R. (2001). *Diagnostico Pedagogico. Un modelo para la intervencion Psicopedagogica.* Barcelona: Ariel
- Marqués, G. P. (2010). Multimedia Educativo: Clasificación, funciones, ventajas, diseño de actividades. *DIM.* Recuperado de http://www.peremarques.net/funcion.htm.

- Mendez, D. (2015). Estudio de las motivaciones de los estudiantes de secundaria y la influencia de las metodologias de enseñanza. *Educación XX1, 18*(2), 215-235.
- Mendoza, A. (2014). La validez de las evaluaciones de alto impacto. *Portal de Revistas Cientificas y Arbitradas de la UNAM*, 6-12.
- Mora, C., Garcia, J., & Molina, A. (2016). What is the key to academic success? An analysis of the relationship between time use and student performance. *Culture and Education*, *28*(1)157-195.
- Morante, M. (2016). Desarrollo de un cuenstionario de competencias en TIC para profesores de distintos niveles educativos. *Pixel-Bit, Revista de medios y educacion*, 48, 135-148.
- Neil, R. (2016). Impacts of ICT on the Pedagogic Discourse in the Interactive Project. *Technology, Pedagogy and Education, 25*(1), 1-18.
- Norris, C., & Soloway, E. (2016). Twelve Factors Leading to Fundamental Pedagogical Change in a Primary School. *Educational Technology*, March-April 25-30.
- Perez Gomez, A. (2012). Educarse en la era digital. Madrid: Morata.
- Perez, A. (1988). *Curriculum y enseñanza: analisis de componentes universidad.*Málaga: Universidad de Málaga.
- Perez, R. (2015). La Evaluacion de Programas Educativos. *Revista de Investigacion Cientifica*, 200-206.
- Pineda, P. (2013). Manual de Estrategias de Enseñanza y aprendizaje.
- Przemycki. (1971). Pedagogié Différenciée. Paris.
- Quinteros, M. (2016). Las TIc en la maleta Pedagogica de los Docente. *Seminario Internacional: Educación e Innovación Social Educativa, Universidad de San Buenaventura*, 1-16.
- Reimers, F. (2014). Protagonismo Docente en el cambio educativo. PRELAC, 30-45.
- Rivera, F. (2013). Revision de la Praxis Educativa. Ra Ximhai 9(4), 259-268
- Ruiz, J. M. (2014). Evaluacion autentica de los Procesos Educativos. *Revista Iberoamericana de Educacion*, 64, 11-25.
- Sanchez, G. (2015). Metodologia para el Diseño Curricular en los Programas Nacionales de Formacion. *Espacio Abierto, Cuaderno Venezolano de Sociologia*, 24(4), 129-150.
- Santamaria, F. (2005). *Herramientas colaborativas para la enseñanza usando tencnologias web.* Recuperado de http://www.fernandosantamaria.com/descargas/herramientas\_colaborativas2.p
- Sosa, M. (2015). Recorrido de las políticas Educativas TIC. *Ventana Informatica*, 1-18.
- Stenhouse, L. (1998). *Problemas de la investigacion y desarrollo del curriculo.*Madrid: Morata.

- Stenhouse, L. (1998). *Problemas en la investigacion y desarrollo del curriculum.*Madrid: Morata
- Suarez, D., & Pineda, M. (2015). Investigacion documental sobre calidad de la educacion en las instituciones educativas del contexto Iberoamericano. *Entramados: Educacion y Sociedad*, 2, 107-124.
- Superior, S. D. (2005). *Documento de Reforma del Curriculo*. Quito, Pichincha, Ecuador.
- Tenbrink, T. (1981). Evaluación. Guia práctica para profesores. Madrid: Narcea.
- Tolchinsky, L. (2014). Building Teachers' Capacity for Using Technologies in Schools. *Educational Media International*, *44*(2), 113-128.
- Tunnermann, C. (2008). *Modelos Educativos y Academicos.* Nicaragua: Hispamer.
- UNESCO. (2003). Estudios y Documentos de Educacion Nº 33.
- UNESCO. (2012). *Comunicacion e Informacion*. Recuperado de <a href="http://www.unesco.org/new/es/communication-and-information/access-toknowledge/open-educational-resources/">http://www.unesco.org/new/es/communication-and-information/access-toknowledge/open-educational-resources/</a>
- Villalta, P. (2015). Ppedagogical Processes and use of Technology in the classroom. *Revista Complutense de Educacion*, *26*(2), 405-4024.
- Zyngie, D. (2015). How Motivation Influences Student Engagement. *Journal of Education and Learning*, *1*(2), 1-16.

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