The learning outcomes in the study program format of school subjects belonging to the General Training Area at UJAT: A syntactic and semantic analysis

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ABSTRACT

This paper presents the results of the analysis performed on the data field called learning outcomes, which is part of the format better known as Study Program, used for subjects in all of the professional careers of the Universidad Juárez Autónoma de Tabasco, in order to identify opportunities for improvement in the syntactic and semantic wording of this data field. The observed results of the nine programs reviewed, belonging to the General Training Area, lead to the conclusion that a weak culture in structuring and formulation of learning outcomes, by those who developed, reviewed and evaluated the Study Programs, is shown. The various stakeholders involved in this process will find it difficult to carry out this task if they have not received training to enable them to write down and evaluate learning outcomes properly. This process of analysis is applicable to any study program format including in its development a data field called learning outcomes, in an educational context.

Keywords: Study program, learning outcomes, syntactic wording, semantic wording.

INTRODUCTION

The Study Program (SP) format contains a variety of fields of numerical and alphabetic data fields, which correspond to the characteristics and attributes of subjects; one of them is the data field called Learning Outcomes (LO´s), which is the subject matter of this work. This data field like others, demand a broad syntactic and semantic knowledge and experience by teachers at time of writing and formulating it, so that the obtained product meets the expected quality.

The aim of this paper is to analyze the current status of the writing of learning outcomes in the curriculum of various subjects in the area of general training of the careers at the Universidad Juárez Autónoma de Tabasco (UJAT) in order to identify opportunities for improvement in the syntactic and semantic writing of this data field revised.

The General Training Area, for UJAT, is the area that aims to achieve an understanding of the environment and the building of enabling knowledge for integration into a discipline. It consists of nine subjects: Human Rights, Environmental Culture, Mathematical Thinking, Computing Tools, Reading and Writing, Philosophy, Foreign Language, Ethics, and Methodology, as well as the subjects of introduction to the training discipline, which serve as the foundation for all professional knowledge (UJAT, 2005, p. 36). Althought only these nine subjects have been reviewed for this paper, all of the curriculum of all careers can be evaluated by following the considerations exposed in this work.

For this data field, we have reviewed aspects of syntax and semantics; for the part of syntax, a structure with various elements suggested by the literature reviewed to include for the correct formulation of learning outcomes has been considered, for comparison with the wording of those LO´s included in the SP format of the subjects of the General Training Area; for the part of semantics has been considered whether the wording bears a semantic consistency closely related to the sense of written statements or not.

This work is not intended to be a guide for the formulation and assessment of learning outcomes, but only a

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helpful work to identify the status of the wording of these in the reviewed study program formats; It is not intended as a discussion paper on the importance of learning outcomes and the role played in the process of teaching and learning. This paper is presented for guidance and support, hoping that the information will help the various stakeholders, involved in the production, review and evaluation of SP, reflect on the work they do.

WHAT ARE LEARNING OUTCOMES?

For the European Commission (2008, p. 3), in the EQF,[1] a learning outcome is defined as a statement of what a learner knows, understands and is able to do on completion of a learning process. Here, LO´s are specified in three categories– as knowledge, skills and competence. This signals that qualifications capture a broad scope of learning outcomes, including theoretical knowledge, practical and technical skills, and social competences where the ability to work with others will be crucial.

Describing a SP in terms of learning outcomes according to (Pukelis, 2011, p. 8) has advantages, as they are more detailed, and therefore, clearer to students, employers and assessors because the skills and knowledge upon which competences are based are made explicit. This helps to increase the transparency of a study program, simplifies acknowledgement of qualifications, and encourages and simplifies international mobility of students and labour.

According to Cortés (2009), a learning outcome can be defined as a statement of what the student is expected to know, understand and be able to do at the end of a learning period.

Learning outcomes are demonstrated by students according to the curricular activities mentioned in the Teaching Suggestions data field (TS); these two fields: learning outcomes and teaching suggestions, among others, are part of the format used in the SP format for the subjects of all careers at UJAT. Thus, the LO´s should be well defined in terms of knowledge, skills and abilities achieved by the student on successful completion of a learning process, implicitly considered in the teaching suggestions.

Learning outcomes are descriptions of what the learner is expected to learn in the period of learning defined Moon (2004, p. 13). This author argues that it is good practice to be explicit about what you expect of learner in terms of learning to be attained. Learning outcomes link with assessment criteria and indicate teaching strategies.

Thus, in the writing of learning outcomes, as discussed above, all this should be considered to ensure that the data fields that integrate the SP, such as: learning outcomes, teaching suggestions, strategies and evaluation criteria are not isolated but linked semantically; these three fields must be tightly coupled. That is, in the context of SP format used at UJAT, learning outcomes correctly written should lead the way for the definition of teaching suggestions that will be used for achieving them, and to define the instruments and criteria for evaluating learning.

Pukelis (2011) lists several sources which introduce different definitions of learning outcomes from a scientific, political and practical approach. All of them, however, more or less correspond to the same concept and meaning.

Also, ANECA (2013, p. 15) includes several definitions, all pointing to the same semantics, and comments from an educational point of view that learning outcomes are considered as one of the cornerstones of the Bologna process. On the one hand, LO´s help the teacher to direct their teaching towards achieving certain goals that have been made explicit in terms of knowledge and skills. On the other hand, LO´s allow the students to know in advance the challenges they will face throughout their training, that is to say, what is expected of them at the end of their studies and how the learning achieved will be assessed. In addition, the use of learning outcomes increases the consistency of teaching and learning model student-centered, as it establishes a link between training activities and assessment methodologies.

These authors Hussey & Smith (2003, 2008) prevent about the error of identifying as synonyms any learning outcome with specific learning objective, for several reasons. Among these, an objective is said to describe only those learning outcomes that are desirable and which were planned in advance, leaving aside any other result of an unexpected or undesirable learning.

[1] EQF – European Qualifications Framework

In ANECA (2013) the differences between LO´s and specific learning objectives are indicated, and some illustrative examples for both objectives and learning outcomes can be found. It also argues that defining the curriculum in terms of learning outcomes requires dedication, effort, resources and obstacles to overcome. Changing the approach to a model focused on the student requires awareness of the academic staff of universities, familiarization with its use and dedication of their time and effort to reflect on the outcomes that students should achieve, as well as their teamwork to achieve common and integrated objectives, at a higher level.

DIAGNOSIS OF LEARNING OUTCOMES

Study program designers who do not have experience in designing study programs on the basis of learning outcomes, will have, to a certain extent, to self-develop the sense of "abstract/specific" formulation of learning outcomes. Learning outcomes are usually more abstract on the level of a study program, while they are more specific on the level of a course unit/module (Pukelis, 2011, p. 19). It is this last feature which has been considered in this work for the syntactic and semantic diagnosis of this data field (LO´s); that is, a learning outcome is considered as a written statement of what the student is expected to be able to do at the end of a defined learning period, corresponding to each learning unit of the different subjects described in the study program formats.

According to Valero (2012), the syntax can not be understood as an arbitrary combination of words. Words are not combined by chance, but in as they play the role of complementary semantic-referential functions. Furthermore, according Lyons (1995) semantics traditionally is defined as the study of meaning. This meaning of the symbols or words must be attributable to syntactically well-formed expressions.

It is up to teachers to find the right words in writing a LO´s, depending on the level of knowledge that students are expected to reach.

For this work, the use of the components described in Moon (2004) has been considered, in orden to evaluate the syntactic and semantic structure of the wording of the learning outcomes included in the SP formats belonging to different subjects, in the general training area of the professional careers at UJAT; according to this author, the components and language that a well-written learning outcome must contain, are:

1. A verb that indicates what the learner is expected to be able to do at the end of the period of learning.
2. Word(s) that indicate on what or with what the learner is acting. If the outcome is about skills then the word(s) may describe the way the skill is performed (eg 'jump up and down competently').
3. Word(s) that indicate the nature (in context or in terms of standard) of the performance required as evidence that the learning was achieved.

The third component of the learning outcome tends frequently to be omitted. The inclusion of this is important to ensure the links in the cycle, since it is the component that mainly provides the main links to assessment criteria.

In Cortés (2009), various learning taxonomies that can be helpful as a guide for writing vocabulary of the verbal component of a learning outcome are mentioned, and that may be of interest to deepen the elements of the teaching-learning process, for teachers who are not from the field of education. Here, a list of words which have been organized according to Bloom's taxonomy can be found. These words correspond to activities that provide evidence of different types of learning, such as: knowledge, comprehension, application, analysis, synthesis and evaluation.

The characteristics of the verbal component of learning outcomes appear explicitly in ANECA (2013) and largely coincide with the characteristics of the verbal component to formulate the general and specific learning objectives mentioned in Pérez (2015).

Learning outcomes of the courses are much more specific and concrete statements than those related to the program learning outcomes generally. Thus, in this work, a diagnosis is performed in order to identify the status of the syntactic and semantic structure of the LO´s included in each learning unit of each study program format reviewed.

Some other guidelines for writing learning outcomes are provided in Guide (2015), and ANECA (2013) such as: the importance of a correct formulation, in which it is stated that learning outcomes are defined through

statements or phrases that contain a verb that expresses an action, a content or object on which the student has to act, and a context or conditions in which the implementation of the action will occur. Different verbs can be used to show different levels of learning; a useful tool for writing learning outcomes, which broadly describes the taxonomy or hierarchy of Bloom, and it is amply illustrated in Kennedy (2007), with examples of how to describe learning outcomes in the different categories: cognitive, subjective, psychomotor.

Considering the above to analyze the current state of the wording of the LO´s, of the study programs of the subjects for General Formation Area, of professional careers at UJAT, about 133 statements (learning outcomes) were identified out of the nine subjects reviewed to evaluate and diagnose whether or not they contain features that define a learning outcome in its entirety.

RESULTS

In reviewing the contents of the data field learning outcomes, of the various study program formats, it has been found that only 13 statements (in four study programs) begin their wording with a verbal component, as suggested in the literature reviewed; that is, 9.78%; the rest begins with phrases such as: construction, classification, summary, mental map, analysis, comparison chart, summary table, writing, outline, document, research projects, interpretive essay, maps, album, critical review, synthesis, conceptual map, scenic representations, descriptive report, explanatory report, purposing test, portfolio, records, videos, papers, evidence, round table, survey, poster, reflection, among others, and which are far much of the features mentioned in the literature reviewed and; their meanings are closer to the concept for products (evidence) rather than that for a verb or action. Clearly, these statements do not meet the first element, which is the verbal component, reaching the high percentage of 90.22 %.

Taking into account the percentage of learning outcomes beginning with a verbal component in its wording, it is noted that, the 23.08 % contains more than one verbal component, this clearly shows the lack of knowledge by teachers for writing learning outcomes; also, it has been found that only seven of the thirteen items meet the three components: verb, content and context; that is, 53.85 % of them have a syntactic structure corresponding to that described in the literature, but some extensive learning outcomes are observed whose semantic description is susceptible of improvement; also, it has been observed that, 15.38 % contains the first two components clearly, but the third component is extensive and ambiguous; and finally, 7.69 % of statements contain an ambiguous verbal component; none of these verbs is listed on any of the levels of abstraction of the revised taxonomies, and their meanings correspond to the context for an activity rather than for a learning outcome.

A large 90.22 % of learning outcomes that are in the SP of the subjects do not comply with a verbal component, they are not understood clearly and surely this will hinder any student understands what is expected of them, at the end of the course/program. Since these learning outcomes are not likely to be observed and evaluated, it is not possible to relate with them any assessment method. Also, this large percentage makes it impossible to identify and assess whether:

•Learning outcomes related to cognitive, subjective and psychomotor levels have been included.

•Learning outcomes with verbal components of levels of higher-order thinking have been included, and whether they are significant for the profession in which they have been included.

•Identified learning outcomes coincide with the teaching and learning strategies designed and the content of the unit, and whether they are viable from the perspective of time and resources available.

•Learning outcomes allow reasonably expect to be achieved at the end of the study program.

•For each learning outcome there is a clear and consistent correspondence with the training activities and the evaluation method.

The observed results allow reading that, only a minimum percentage of 5.26 % absolute of learning outcomes contains the elements for the correct formulation thereof, and 94.74 % absolute lack of them.

CONCLUSIONS

With the results observed in this work, the various stakeholders involved in the formulating and structuring

process of learning outcomes, will be able to identify and recognize the opportunity they have, to improve the wording of the reviewed data field in the study program formats of subjects, belonging to the general training area of professional careers at Universidad Juárez Autónoma de Tabasco. It has been found that a large percentage of learning outcomes presents deficiencies in its syntactic and semantic writing; this may be the result of lack of knowledge and experience by those who made the study program of the various subjects; also, these results demonstrate the limited experience of the different university actors who are part of the process in the design, use and evaluation of learning outcomes; this makes that, in most cases, they present a description susceptible of improvement. In many cases, learning outcomes included in the study programs are ambiguous, difficult to understand or difficult to achieve along the course or program and hinders its understanding by all stakeholders involved in the process. In addition, these results indicate that learning outcomes are not observable or measurable which makes it impossible to have teaching strategies for the teaching-learning process, and establish clear criteria for evaluation.

As discussed above, it is difficult to clearly identify a genuine process of teaching/learning for students, when what is expected for them to learn, in a defined period of time, this is formulated with syntactic and semantic ambiguities and shortcomings. The inclusion of learning outcomes in a study program requires dedication, effort, resources and obstacles to overcome by all the stakeholders involved in this task: teachers, review committees and evaluation committees. In most cases, these three actors overlook what standards dictate to formulate and write learning outcomes; that is, teachers who write them, the reviewing committees that accept them and, evaluation committees that approve them for certification of professional careers. It is desirable that those responsible for the development of all the study programs are accompanied by a teacher advisor with experience and expertise in these issues so that the resulting work meets the desired quality.

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