

Piloting a Self-Report Questionnaire to Detect Reading-Writing Difficulties in Students from Two Colombian Universities

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Abstract— This paper contains the results of the process of checking the comprehensibility of a self-report questionnaire, called Self-Testing Questionnaire for Reading Difficulties in Adults (ADDA by its abbreviation in Spanish), to detect university students with reading-writing difficulties in Colombian universities. It describes the step of the selection, design, and implementation of the ADDA that was used for this pilot study, in which students from two virtual universities participated: EAN University and Santo Tomas University. The aim is to identify the potentialities of the ADDA for the detection of learning difficulties in the Colombian context. Two studies were performed to check and adapt ADDA. The first study was carried out with two professionals in languages and six expert teachers (focus group) in education, psychology, mathematics, linguistics, and technology. The second one was developed with 30 first year students from different academic programs from both universities. Results show that ADDA can be applied in the Colombian context.

Keywords: *learning difficulties; dyslexia; Self-Testing Questionnaire for Reading Difficulties in Adults; ADDA; e-learning; virtual learning environments*

I. INTRODUCTION

Learning difficulties in Spanish-speaking university students are not easy to detect. Therefore, specific instruments that help in this identification process are required in order to achieve adequate interventions [1], [2]. However, these disorders can be overcome through different learning strategies, as long as the person has been properly diagnosed [3].

In order to understand student-learning difficulties researchers and practitioners have focused on identifying the remaining difficulties shown by adults with dyslexia, and developing intervention programs to reduce their difficulties [4], [5]. There is abundant evidence that specific reading and writing difficulties do not disappear with age or training [6]. Despite their difficulties, many dyslexic students could develop compensatory strategies to help them succeed in their studies [7], and get into university, although they still underperform in reading-related tasks [6]. However, not all students whose performance is affected by dyslexia are diagnosed and/or treated before starting their studies at university [8]. So, a considerable number of students enter university without having the skills that are expected from mature readers, and would require support to cope with high reading demands.

As a consequence, high education institutions are in clear need of adopting specific resources to detect students

that still exhibit reading-writing difficulties, and identifying which reading skills this population lacks in order to provide them advice and support.

Self-report questionnaires have aroused interest because they have been proven to be valid and reliable tools for recalling information about personal history and current difficulties [9]; individuals who describe themselves as having reading-writing difficulties tend also to obtain lower scores on specific tests [9]. Furthermore, self-report questionnaires have been successfully used with other tools as criteria for selecting the participants for several studies on reading development and reading difficulties [10], [11]. These findings provide evidence to support self-reports as highly predictive tools that can reveal dyslexic high performers, who may not have a previous diagnosis, but nevertheless exhibit difficulties implying dyslexia. Although unable to provide a diagnosis, self-reports are easy and quick-to-use tools that help recognize not only the students with limited reading-writing abilities, but also the difficulties exhibited by this population. Unfortunately, just few studies have focused on learning difficulties in secondary school [12]. This lack of studies may reveal that the intervention initiated in primary school does not continue in secondary school. That is, there is no advice or support given after primary school, and older dyslexic students have to cope with their reading-writing difficulties on their own. As a result, students might fail, or even drop out, because they lose their self-esteem, feel intimidated, and are unable to continue beyond secondary school.

In summary, specific reading and writing difficulties often persist into adulthood. A literature review shows that university students with dyslexia may have not been diagnosed and/or treated before starting their studies at university, though they are able to compensate with certain strategies. Furthermore, in Colombia, university students are not questioned about their learning difficulties; therefore, the number of cases is unknown. This is how the self-report questionnaire called Self-Testing Questionnaire for Reading Difficulties in Adults (ADDA by its abbreviation in Spanish) was designed and validated in Spain to detect university students with reading-writing difficulties [3].

In this paper, we propose two studies focused on the adaptation of the ADDA questionnaire, in order for it to be effectively applied in two Colombian universities. The first study was carried out with two professionals in languages and six expert teachers (by means of a focus group) in education, psychology, mathematics, linguistics, and technology. The second study was developed with 30 first year students from different academic programs from both

universities. These studies are focused on testing the comprehensibility of the ADDA questionnaire in the Colombian context.

The analysis of the answers of students would provide information about the misunderstandings in ADDA related to language; considering that ADDA was developed to be applied in the Spanish context. This paper is structured as follows: in the second section, a method based in two studies is presented; the third section shows the results. Finally, in the fourth section, we draw some conclusions and enumerate proposals for future work.

II. METHOD

A key factor in the dropout rate is the academic performance [13], which in higher education is a consequence of the specific difficulties that make undergraduate students perform below their capacity causing critical frustrations about their studies [14]. Therefore, it is necessary to detect these learning difficulties. Thus, ADDA, a self-questionnaire for the detection of learning difficulties, previously designed and validated in Spain [3], is applied; but there are some adaptations that should be made in contextual, linguistic, and cultural elements for it to be applied in Colombia. To achieve this, two studies were performed to check and adapt ADDA. The first study consisted of a review by two professionals in languages, and later validated in a focus group by teaching experts from Colombian universities. In the second study, once the instrument is adapted, it is organized on an online tool, and then, it is used as a pilot test with students from EAN University and Santo Tomas University.

A. Participants

Study 1: Two professionals in languages, from EAN University were consulted to review the redaction of the ADDA, to start the adaptation to the Colombian context. Moreover, six teachers of two important Colombian Universities were consulted in a focus group. Their selection was made by using a non-probabilistic sampling, based on the experience of the experts, taking in account interdisciplinary fields of knowledge (in education, psychology, mathematics, linguistics, and technology), and their availability to participate in the study.

Study 2: 30 first year undergraduate students, 15 from EAN University and 15 from Santo Tomas University, 17 males and 13 females, from different programs, with ages ranging from 18 to 37 years participated in this study. The sampling method was non-probabilistic, the invitation to participate was sent to a group of first year undergraduate students, with voluntary participation.

B. Instruments: ADDA

ADDA was specially designed to identify university students with reading-writing difficulties, and covered a wide range of aspects [3], [12], [15]. ADDA consisted of a list of 100 statements to be answered by making the most suitable choice. The questions covered a wide range of aspects, and are organized into seven sections: school and learning to read experience, history of learning disabilities, current reading-

writing difficulties, associated difficulties, family history of learning disabilities, reading habits, and writing habits. The items include 14 multiple-choice questions and 86 dichotomic (yes/no) questions.

C. Procedure

ADDA questionnaire was first reviewed by the two language experts, after this, it was discussed in the focus group with the experts. After the changes produced in the first study, it was ready to be presented to the students in the second study. As it was intended to access many students from virtual universities, an online tool was implemented. Thus, the instrument was distributed to the students using the e-encuesta online tool. Furthermore, they were sent a small survey where they were requested to send information about the estimated time to complete the self-report questionnaire, as well as suggestions and/or comments on the questions, basically the ones that are not easily understood. The analysis of the results was made using the qualitative assessment of the information and quantitative descriptive statistics.

III. RESULTS

After a detailed review by the two professionals in languages, 37 questions of the ADDA were modified in order to improve the comprehension of the instrument. Later, the instrument was conducted to the focus group of six teaching experts of two Colombian universities and 11 items were modified. This review was based on linguistic elements and the content of the instrument, seeking coherence between the question and the expected answer.

Some of the adaptations to the items were referred just to the right use of a word or sentence, and others were about repeated statements that could cause confusion. It was also verified that all the questions were written in positive statements.

Regarding the development of the pilot test with students, their contributions were about some words and sentences that are not clear to them, and the extent of the instrument, mentioning that it takes between 15 and 30 minutes to complete the questionnaire.

The study allows us to determine a percentage of students showing learning disabilities at EAN University and Santo Tomas University. Thus, to explore the students' history of learning disability, we found that two students (10%) had consulted a specialist in learning disabilities, and two (6,7%) had been evaluated for some of these disabilities. A total of four students (13.3%) indicated a previous diagnosis of some type of learning disability (dyslexia, dysgraphia, dysorthography, or dyscalculia), but only one student (3.3%) reported receiving treatment. Moreover, five students (16.7 %) indicated they might have a reading or writing disability, although only two of them had been previously diagnosed with a learning disability.

Therefore, we found that the most common reading-writing difficulties in the sample were: 73.3% needed a second reading of the text, 60% had difficulties extracting the main idea of a text in a first reading, 56,7% had to read

slowly to avoid confusion, 43.3% of them present illegible handwriting, and 36.7% found it difficult to concentrate.

For all the above, it can be said that the ADDA is an effective tool to detect possible learning difficulties in Colombian university students. It is worth noting that the modifications that were made are consistent for the Colombian context, so we will achieve an assertive report about the difficulties that the students exhibit. In this way, solutions can be given on time to any failure that affects academic performance.

IV. CONCLUSIONS

This paper was built to check the comprehensibility of the ADDA in the Colombian context. To do that, first, it was validated by professionals in languages and by experts in education, psychology, mathematics, linguistics, and technology. Second, it was used as a pilot test a group of 30 first year students from EAN University and Santo Tomas University. Thus, the self-report questionnaire was adapted to the Colombian context; the items were reviewed in detail at the contextual, linguistic, and cultural levels.

Regarding the ADDA pilot test, it was able to meet the proposed objectives, because it was possible to evaluate and modify (if applicable) each of the self-report questionnaire items, until leaving them in the Colombian context, allowing greater understanding of the instrument.

Our results showed a high percentage of students who reported a previous diagnosis of learning difficulties; that actually indicates a prevalence of reading and writing difficulties in university students. Unexpectedly, there was a weak relationship between having a diagnosis of reading and writing disability in the past and receiving treatment (few of the students who reported being previously diagnosed, reported receiving treatment). Most students with a previous diagnosis had not received suitable training to cope with their difficulties. There were some commonly reported difficulties, as for example *needing a second reading, having difficulties extracting the main idea, having to read slowly, having illegible or difficult to read handwriting, and difficulties to concentrate*.

Based on these findings, it is expected that at the time of applying the ADDA to the student population of Colombian universities, the results are achieved in order to analyze each of the designed items, and thus be able to give an appropriate analysis, conducive to contribute toward improving student learning and decreasing student dropout.

It is important to clarify that the instrument that was used does not constitute a diagnosis tool; it shows the difficulties of the students that can alert universities so that they can study the cases in depth in order to find diagnoses and appropriate treatments for each detected difficulty. It is also important to mention that although the ADDA is a self-report questionnaire, the items are not about perceptions but about facts, easily to identify by the person who is being tested.

Of course, it is a necessity to replicate this study in a larger sample of students from both EAN University and Santo Tomas University, in order to find learning difficulties as a reference for any academic program, and these answers will allow us to follow a scheme of continuous improvement.

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