Connecting content and real life with authentic learning opportunities in Psychometrics

Faculty of Economic and Management Sciences | Department of Industrial Psychology

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Programme: Industrial Psychology 214 (Psychometrics)
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Learning activity:
Authentic assessment

Learning technology:
Turnitin Grademark

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Context

Background

Determining the abilities, thoughts, feelings, perceptions and states of people in the workplace is probably one of the most difficult things that one might come across in one's career. Psychometric testing plays an important role in the modern world of work, since we make crucial decisions based on psychological measurements, such as interviews, psychological tests, assessment centre exercises and other assessments.

The objectives of the module in Psychometrics are to explain the function of Psychometrics in Industrial Psychology, the essence of measurement, measuring instruments, measuring procedures, the application of measuring procedures, the statistical analysis of measurements and decision making based on measurements. Another objective is to equip students with basic skills in the application of measurement procedures and the statistical analysis of measurements. A further objective is to enable students to make meaningful and respected contributions to the psychometric debate and practice in South Africa. The module furthermore aims to lay a solid foundation for more advanced postgraduate modules in Psychometrics normally followed in Industrial Psychology programmes. The underlying rationale for the course content lies in the theoretical knowledge and basic skills required to make a significant contribution via measurement to the effective utilisation and management of personnel.

Subject area

Industrial Psychology 214 is an introductory Psychometrics module. During the module, students are exposed to basic research methodology and statistics. Initially, the module focuses on what scientific research is, why it is done and how it fits into the field of industrial psychology.

The first section focuses mostly on why it is important for industrial psychologists to follow a scientific approach. Students are usually also required to put together a research proposal. This includes all the skills that this entails, such as developing research questions, theorising, applying methodology and formulating a hypothesis.

The second section focuses more on statistics and psychometric tests. Students are taught how to evaluate tests statistically; the link between psychometric tests and Industrial Psychology is also addressed. A large part of the content deals with the characteristics of good psychometric tests.

This module is an important one, since assessments play a big role in the work of industrial psychologists in the industry.

Established practice and challenges

The module makes use of continuous assessment. Previously, students were required to write three tests and complete four practical sessions throughout the semester. Additional tutorial sessions were also presented by previous students.

Students generally struggle with this module. Even though they have done Introductory Statistics, they find it difficult to make the connection between the two modules. They also complain about the slides, the content and the type of language used in the module. In the module feedback, many students furthermore ask for opportunities to practice the content. Some also argue that they cannot see how the module applies to them and their future work.

Challenges and advantages associated with the integration of technology

An assignment that created an opportunity for authentic learning was therefore developed. In the new assignment, students would have the opportunity to apply every aspect of the module content. A platform for the students to be scaffolded through every phase of the assignment was provided by SUNLearn.

Student overview

The students enrolled in this module are second-year Industrial Psychology and Human Resource Management students. The class under discussion consisted of 120 students.

Learning and assessment activities

Educational approach

The lecturers wanted to create an authentic learning (Ozcerir, Herrington & Osam, 2016) opportunity for the students. They scaffolded (Hogan & Pressley, 1997) this learning through each phase of the assignment as they

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worked through the content.

Learning and assessment activities

Academic performance was chosen as the topic for the assignment and the students had to answer the question, "Why do different students perform differently?" This was explored through three phases during the authentic assessment activity.

During the first phase, the students theorised in terms of academic performance. This meant that they read up on issues that influence academic performance, identifying three factors and writing a brief paragraph in which they argued how the literature supported these. They then shared their findings with their group members in the following contact sessions. The group members discussed the findings and argued which factor was most significant and relevant. Using their conclusions, the groups then put together small research proposals.

Figure 1: Students working in groups

During the second phase, the students developed samples of academic performance. Once the groups decided on the factor that they would look at, each group developed questions related to that factor's influence on academic performance and compiled a short questionnaire. The students also provided their own academic marks from their first year to serve as data input for use at a later stage.

During the third phase, the students evaluated the psychometric properties of the questionnaires. All the students submitted their questionnaires and completed the questionnaires created by the other groups. This resulted in a data set for each group. The lecturers made podcasts available on SUNLearn that showed the students how to evaluate the data: how to use Microsoft Excel formulas, clean data sheets and run the equations taught in class to calculate the reliability and validity of the results. The students completed this phase in groups.

Figure 2: Students develop short questionnaires

The tests that were psychometrically the strongest were then identified. The whole class did that test again to create one big data set. Individually, each student interpreted the results and drew conclusions based on her or his own academic results and on the results of the test. This was submitted as a report.

Feedback practices

After each phase of the assignment, the students received feedback on their work: the lecturers marked each phase and provided constructive

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feedback to enable the students to improve their work. The lecturers marked the work with great care, since this was the first time that the assignment was implemented and they wanted to be aware of any issues and any possible changes that had to be made for the following years. Since the assignment also stretched over a long period, the lecturers used the opportunity to identify any areas in which the students might be struggling.

Learning environment

Learning setting

Learning took place during the contact sessions, online and off-campus during the group work. One contact session was devoted exclusively to explaining the assessment activity to the students. Throughout the semester, time was spent during the lectures to inform the students of what exactly was expected of them for each phase, what content they should look at and how they should submit their work.

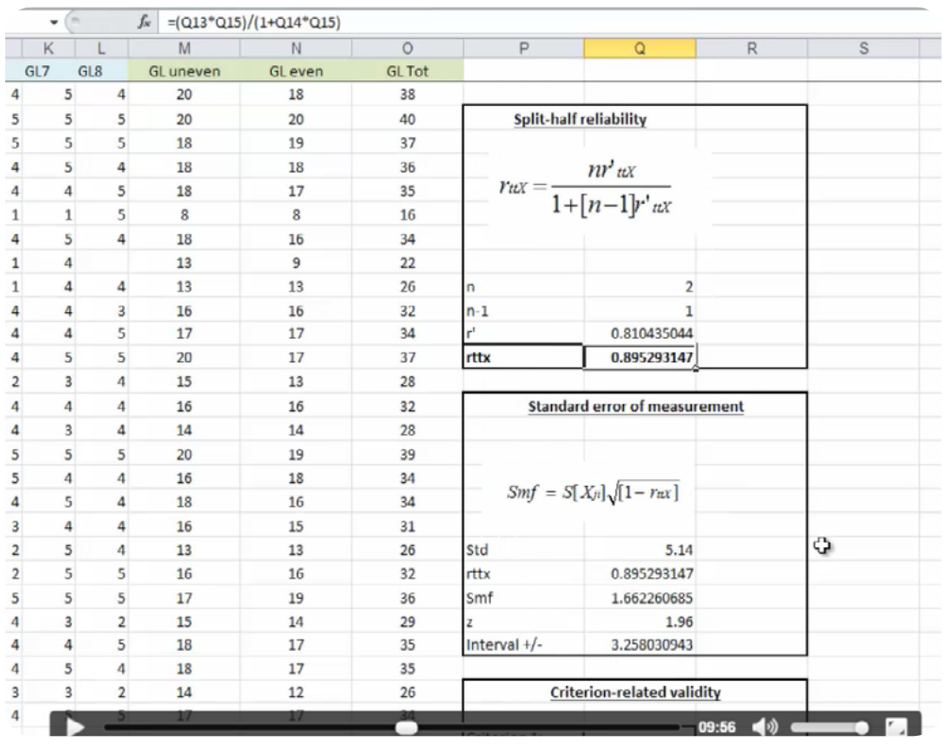

Figure 3: Screenshot of a podcast that was made available to the students

Content resources

The main form of content was the PowerPoint slides created by the lecturer. The recommended textbook was not compulsory. The lecturer also made podcasts for students to consult during the phase that they had to use Excel. Additional resources in the library could be referred to and the students were advised to look up specific content online.

Technology resources

The students submitted their assignments through the Turnitin assignment instrument on SUNLearn. When the phases were completed in groups, each group leader submitted the group's assignment on behalf of the group and made sure that everyone received the feedback. The SUNLearn quiz instrument was used as the data collection tool for the questionnaires.

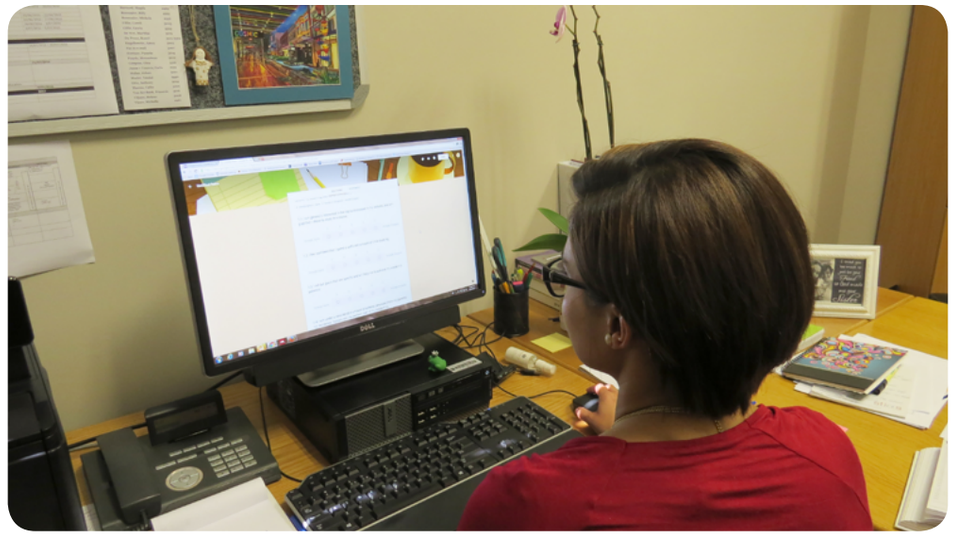

Figure 4: Lecturer working on questionnaire

Student experience

Student feedback on the learning experience

The students had an overall good experience of the authentic learning assessment activity. Most of the students (80%) felt that what they learned in the assignment could be applied to real life situations. The main concern was that the students did not like working in groups, since they felt that not all the group members contributed. The lecturers did notice that the

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students did better in the tests. There was an overall 9% increase in the number of students who passed the course. This was attributed to the fact that the authentic learning assessment motivated deeper learning.

General

Opportunities

When implementing any new assessment opportunity, it is important to take away other work in order not to over-assess. When this new authentic assessment activity was added, students wrote one test less.

Google Forms was identified as a way of collecting data for future questionnaires. SUNLearn Quiz posed problems in terms of the setting up of questions and the making available of results to the students. With Google Platform, however, each group can set up its own quiz and has immediate access to its data.

The comprehensive slides will be changed into a guide format and the slides will be adapted. The students will then be able to use the guide as a sort of mini-textbook.

Challenges

Quite a lot of marking was involved, which required a lot of lecturer resources. This was justifiable, since this was the first time that the assignment was implemented and it was important for the lecturers to be hands-on with all the aspects of the assessment activity. In the future, student assistants or postgraduate students could be called on to assist with the marking.

Advice

Lecturers should make their assessment activities as authentic as possible. When doing something similar to this assignment, a topic should be chosen that is relevant and interesting to the students. When students set up their own tests, for example, it gives them the opportunity to apply the content of the module and it opens their eyes to the work that they will be doing in practice.

Reference list

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