



EXPLORING THE INFLUENCE OF CULTURAL DIMENSIONS ON FORMATIVE ASSESSMENT PRACTICES AMONG SCIENCE TEACHERS IN CYCLE TWO SCHOOLS OF OMAN

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ABSTRACT

There is paucity of empirical research on the direct influence of culture on the execution of formative assessment practices in the classroom. Consequently, this study employs Hofstede's cultural dimensions to investigate the influence of different dimensions of culture on formative assessment practices. Data were obtained from 91 science teachers in Cycle Two schools located in the Sultanate of Oman. A self-administered structured type of questionnaire was employed, and the primary data were analysed using SPSS. According to the results, the formative assessment practices of the science teachers were significantly influenced by the five culture dimensions investigated: Power-distance, Collectivism-individualism, Masculinity-Femininity, Uncertainty avoidance, and Oriental view (long-term orientation and short-term orientation). The findings offer empirical validation and vital theoretical insights into how culture can interact and influence delivery of formative assessment practices in the classroom. Practically, valuable insights are offered to policy makers and implementers as they embark on the strengthening of teachers' competencies in formative assessment.

Keywords: *Hofstede's Cultural Dimensions; Formative Assessment; Assessment Practices; Cycle Two Schools; Oman*

RESEARCH HIGHLIGHTS

1. The formative assessment practices among the science of Cycle Two schools in the Sultanate of Oman is relatively high moderate at 2.7013 (SD= 0.85561). The variables relating to cultural dimensions also reveal moderate mean scores.
2. The results of the hypotheses testing using multiple regression analysis reveal the following: Power Distance as a dimension of culture has a significant influence on formative assessment practices of science teachers (t value = 1.788 at $p < 0.05$), thus supporting the research Hypothesis (H1). Individualism-Collectivism as a dimension of culture has a significant influence on formative assessment practices of science teachers (t value = 2.332 at $p < 0.05$), thus supporting the research Hypothesis (H2). Masculinity-Femininity as a dimension of culture has a significant influence on formative assessment practices of science teachers (t value = 1.696 at $p < 0.05$), thus supporting the research Hypothesis (H3). Uncertainty Avoidance as a dimension of culture has a significant influence on formative assessment practices of science teachers (t value = 1.907 at $p < 0.05$), thus supporting the research Hypothesis (H4). Oriental view as a dimension of culture has a significant influence on formative assessment practices of science teachers (t value = 1.907 at $p < 0.05$), thus supporting the research Hypothesis (H5).

Research Objectives

Objective 1: To determine the psychometric properties of the adapted instruments that measure formative assessment practices and cultural dimensions.

Objective 2: To evaluate the influence of cultural dimensions on the formative assessment practices of science teachers in Oman cycle two schools.

Research Hypothesis

H1: Power-distance significantly influences formative assessment practices among science teachers in Oman Cycle Two schools.

H2: Collectivism-individualism significantly influences formative assessment practices among science teachers in Oman Cycle Two schools.

H3: Masculinity-femininity significantly influences formative assessment practices among science teachers in Oman Cycle Two schools.

H4: Uncertainty avoidance significantly influences formative assessment practices among science teachers in Oman Cycle Two schools.

H5: Oriental view significantly influences formative assessment practices among science teachers in Oman Cycle Two schools.

Methodology

This is a quantitative study that adopted a post positivist philosophy in a deductive approach using a questionnaire survey to examine the direct effects of cultural dimensions on the formative assessment practices among science teachers in Cycle Two schools in the Sultanate of Oman.

Research Sample: The sample of this study (N = 91) was selected using a two-stage cluster sampling design. The sample consists of science teachers with teaching experience of five years and above in Cycle Two (Grades 5-8) schools in the 11 educational governorates in Oman for the academic year 2022 to 2023.

Research Instrument: A self-administered structured type of questionnaire served as the research instrument used to gather quantitative cross-sectional primary data. Responses were anchored on a 4-point Likert scale of strongly disagree (1), disagree (2), agree (3) and strongly agree (4) in agreement with Chyung et al. (2017).

Data analysis: The responses obtained from the questionnaire survey were analyzed using the SPSS software due to its usefulness for analyzing quantitative data, it offers reliable and fast answers and utilizes diverse data sets which can be represented in useful tables and graphs.

The components of the formative assessment practices were computed into the same variable (FAP) to represent the predicted variable, using the SPSS function, while the 5 predictor variables (PD, IC, MF, UA and OV) represent the Hofstede's cultural dimensions. The primary data were then subjected to a multiple regression analysis for inferential testing of the research hypothesis.

Results

The research variables' means and standard deviations (SD)—measures of central tendencies—were computed. The formative assessment practices among the science of Cycle Two schools in the Sultanate of Oman is relatively high moderate at 2.7013 (SD= 0.85561). The variables relating to cultural dimensions also reveal moderate mean scores.

- A multiple linear regression was conducted as a statistical inferential analysis to test the research hypotheses. The coefficient of determination (R²) value of 0.216, indicates the level of prediction, and indicating that the cultural dimensions (PD, IC, MF, UA and OV) are responsible for 21.6% of the total variance in the formative assessment practices of the science teachers.
- The ANOVA results $F(4, 91) = 276.003, p < 0.05$ gives an indication of a good data fit for the regression model.
- The results of the hypotheses testing using multiple regression analysis indicated that all CD have significant influences on FAP, ($p < 0.05$), thus supporting all research Hypothesis.

Findings

- In line with the mean scores of the culture dimensions, the aggregated responses of the science teachers who took part in the survey show, for instance, that in the Sultanate of Oman, the science teachers may tend to deal with students collectively and do not encourage students to individually speak up in the class (collectivism).
- The results are in line with Hofstede (2011) who showed that the deeply embedded values of diverse cultures influence not only how people with different cultural backgrounds behave, but also the way they will potentially behave when placed in a work or learning associated context.
- These cultural challenges are in line with the challenges revealed internationally (Liem et al., 2008; Al-Wassia et al. 2015; Ghazarian and Youhne, 2015); however, cross cultural differences could also emerge from the community values, which are reflected in the philosophy and objectives of education in a country like the Sultanate of Oman, which basically emphasize the Omani cultural identity and the traditions, customs, and historical heritage of the Omani Society, alongside its commitment to the Islamic religious belief in equality between all citizens and social justice for all.

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