Instructor Assessment Literacy and the Implementation of a Student Assessment Methodology in Higher Education

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Abstract

Objective. To examine the relationship between instructors› assessment literacy (IAL) and the reported implementation of formative and alternative assessment methodology (FAAM) adopted at a Colombian university during the COVID-19 pandemic, analyzing how assessment strategies and institutional factors influence both constructs. **Method.** A survey was administered to 159 instructors addressing topics including benefits and challenges experienced with FAAM implementation, assessment strategies employed, perspectives on student assessment, and background experiences with assessment. Multiple regression analyses were conducted to identify predictors of IAL and FAAM implementation. **Results.** Assessment strategy use

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during FAAM implementation emerged as a significant predictor of IAL. IAL was significantly associated with FAAM component implementation. The colleges of Law and Education functioned as significant positive predictors of FAAM implementation. The School of Education demonstrated the strongest institutional influence, serving as a significant predictor of all outcome variables. IAL emerged as both the most influential explanatory variable and the outcome variable with the highest number of significant predictors. **Conclusion.** Instructors› assessment literacy represents a critical mediating factor in the successful implementation of formative and alternative assessment methodologies during institutional transformations. Disciplinary context, particularly within education and law faculties, significantly influences both assessment literacy development and FAAM adoption, suggesting that assessment reform requires disciplinary-sensitive approaches and comprehensive professional development in assessment practices.

Keywords: Assessment literacy, formative and alternative assessment, student assessment, assessment strategies, multiple regression.

La Competencia de los Docentes en Evaluación y la Implementación de una Metodología de Evaluación de los Estudiantes en la Educación Superior

Resumen

Objetivo. Examinar la relación entre la literacidad evaluativa del profesorado (LAE) y la implementación reportada de la metodología de

evaluación formativa y alternativa (MEFA) adoptada en una universidad colombiana durante la pandemia de COVID-19, analizando cómo las estrategias evaluativas y los factores institucionales influyen en ambas construcciones. **Método.** Se aplicó una encuesta a 159 docentes abordando temas como beneficios y desafíos experimentados con la implementación de MEFA, estrategias evaluativas empleadas, perspectivas sobre evaluación estudiantil y experiencias previas con evaluación. Se realizaron análisis de regresión múltiple para identificar predictores de LAE e implementación de MEFA. **Resultados.** El uso de estrategias evaluativas durante la implementación de MEFA emergió como predictor significativo de LAE. La LAE se asoció significativamente con la implementación de componentes MEFA. Las facultades de Derecho y Educación funcionaron como predictores positivos significativos de la implementación de MEFA. La Escuela de Educación demostró la influencia institucional más fuerte, sirviendo como predictor significativo de todas las variables de resultado. La LAE emergió como la variable explicativa más influyente y la variable de resultado con mayor número de predictores significativos. **Conclusión.** La literacidad evaluativa del profesorado representa un factor mediador crítico en la implementación exitosa de metodologías de evaluación formativa y alternativa durante transformaciones institucionales. El contexto disciplinar, particularmente dentro de las facultades de educación y derecho, influye significativamente en el desarrollo de literacidad evaluativa y adopción de MEFA, sugiriendo que la reforma evaluativa requiere enfoques sensibles a la disciplina y desarrollo profesional comprehensivo en prácticas evaluativas.

Palabras clave: competencias evaluativas, evaluación formativa y alternativa, evaluación de estudiantes, estrategias de evaluación, regresión múltiple.

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A Competência dos Docentes em Avaliação e a Implementação de uma Metodologia de Avaliação dos Alunos no Ensino Superior

Resumo

Objetivo. Examinar a relação entre a literacia avaliativa de instrutores (LAI) e a implementação reportada da metodologia de avaliação formativa e alternativa (MAFA) adotada em uma universidade colombiana durante a pandemia de COVID-19, analisando como as estratégias avaliativas e fatores institucionais influenciam ambas as construções. **Método.** Um survey foi administrado a 159 instrutores abordando tópicos como benefícios e desafios experimentados com implementação de MAFA, estratégias avaliativas empregadas, perspectivas sobre avaliação estudantil e experiências prévias com avaliação. Análises de regressão múltipla foram conduzidas para identificar preditores de LAI e implementação de MAFA. **Resultados.** *O uso de* estratégias avaliativas durante a implementação de MAFA emergiu como preditor significativo de LAI. A LAI foi significativamente associada com a implementação de componentes MAFA. Os colégios de Direito e Educação funcionaram como preditores positivos significativos da implementação de MAFA. A Escola de Educação demonstrou a influência institucional mais forte, servindo como preditor significativo de todas as variáveis de resultado. A LAI emergiu como a variável explicativa mais influente e a variável de resultado com o maior número de preditores significativos. **Conclusão.** A literacia avaliativa de instrutores representa um fator mediador crítico na implementação bem-sucedida de metodologias de avaliação formativa e alternativa durante transformações institucionais. O contexto disciplinar, particularmente dentro das escolas de educação e direito, influencia significativamente o desenvolvimento de literacia

avaliativa e adoção de MAFA, sugerindo que a reforma avaliativa requer abordagens sensíveis à disciplina e desenvolvimento profissional abrangente em práticas avaliativas.

Palavras-chave: competências avaliativas, avaliação formativa e alternativa, avaliação dos alunos, estratégias de avaliação, regressão múltipla.

Introduction

The FAAM was a pedagogical response developed by a university in Colombia's southern region to address the instructional constraints imposed by the COVID-19 pandemic during the 2020-2021 period. This methodology included the use of eleven assessment principles, among which were flexibility, democracy, feedback orientation, heterogeneity, and permanence. Additionally, formative and alternative assessment practices, such as self-assessment, peer assessment, portfolio use, digital technologies, and social media, were implemented. A transitory modification of the grading policy was also applied. Thus, the pedagogical principles and practices suggested in the FAAM were sensitive to the constraints of online instruction, such as students' lack of access to devices for connecting to classes or poor internet connectivity in rural areas where many students reside.

Thus, the FAAM was implemented for four academic semesters during 2020 and 2021. In 2022, the university returned to in-person instruction and to its pre-pandemic assessment methodology and academic policies. Three years after the implementation of the FAAM, there remains an interest in understanding the impact of this assessment methodology on teaching and learning. Hence, this study examined how the FAAM experience shaped instructors' perspectives on student assessment, or, conversely, how their background

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experiences with and perceptions of student assessment influenced their performance during implementation. Throughout this report, such perspectives will be referred to as instructors' assessment literacy (IAL) or instructors' approaches to student assessment.

IAL or Approaches to Student Assessment

Understanding and implementing the different elements of a sound classroom assessment approach entails building up what scholars have called assessment literacy, teacher assessment competency, or approaches to classroom assessment (Brookhart, 2011; DeLuca *et al.*, 2016; Popham, 2017). It has been over three decades since educational researchers began discussing the knowledge and skills teachers need to assess students appropriately (Schneider *et al.*, 2020). The publication of the 1990 Standards for Teacher Competence in Educational Assessment of Students constituted a significant departing point in the field. However, new approaches to student assessment, such as formative assessment or assessment for learning, and a more prominent involvement of students in classroom-based assessment demanded new knowledge and skills from instructors (Brookhart, 2011; Stiggins, 2008). Since then, different teacher AL inventories have proliferated, such as McMillan's (2000) big ideas, Mertler and Campbell's (2005) AL Inventory, Stiggins' (2010) list of five key assessment knowledge and skills, Brookhart's (2011) update of the 1990 standards, and DeLuca *et al.*'s (2016) instrument titled Approaches to Classroom Assessment Instrument (ACAI), to mention some. Researchers have used these instruments to determine the multiple factors that influence and shape teachers' approaches to classroom assessment, whether these relate to intellectual abilities or non-intellectual personality traits (Schneider *et al.*, 2020).

Additionally, research worldwide has revealed the positive effects of classroom assessment training and the increased need to develop

AL in teachers and students. Lees and Anderson (2015) emphasize the importance of including not only instructors but also students in the development of AL. The authors argue that students need to understand the purpose of assessment and how to use feedback to improve future performance. García and Meza (2016) go on to propose the involvement of students and families in a joint effort to improve the educational process through assessment.

Researchers in the country where the FAAM was implemented have increasingly called for more training on classroom assessment, whether by implementing assessment courses in teacher education programs or introducing more professional development in assessment for in-service teachers (García & Meza, 2016; Herrera & Macias, 2015; Lopez & Bernal, 2009; Quintero, 2021; Rodriguez & Salinas, 2020). Lopez and Bernal (2009) found that only seven out of 27 teacher education programs in Colombia included assessment courses in their curricula. In exploring the perspectives of college instructors from Latin American and European countries, Rodriguez and Salinas (2020) identified the need to adapt assessment practices to online learning contexts, including blended and e-learning. Furthermore, the training conducted as part of the study allowed teachers to collaboratively reflect on, discuss, and define elements of classroom assessment that can transform the teaching and learning process in higher education. Likewise, Villa Larenas and Brunfaut (2023) assert that there is a need for further development in language AL among Chilean teacher educators. The authors claim that building AL implies connecting different factors of teachers' professional realities, such as contextual working conditions, local assessment culture, and an assessment belief system.

Kruse *et al.* (2020) investigated the impact of a college assessment course on pre-service teachers' AL and classroom assessment confidence. Their research found significant changes in both AL and self-efficacy, with the relationship between the two variables negative

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at the pre-stage and positive at the post-stage. That is, instructors who self-reported higher levels of AL showed higher assessment confidence. Other studies have investigated the relationship between AL and aspects such as teaching experience and personality traits. For example, DeLuca and colleagues (2018) found that more experienced teachers tended to have a more differentiated and student-oriented assessment approach and were more skillful at processes such as monitoring, analyzing, and feedback. Research conducted with student teachers in Germany and Canada revealed a positive association between personality traits, such as patience and empathy, and educational assessment competence (Schneider *et al.*, 2020).

In short, research has revealed a heartfelt need to enhance stakeholders' perspectives on student assessment, whether at the pre-service or in-service teaching stage; significant benefits of assessment training; and the influence of multiple factors on teachers' AL. Thus, as Weigle (2007) claims, "A solid understanding of assessment issues should be part of every teacher's knowledge base, and teachers should be encouraged to equip themselves with this knowledge as part of their ongoing professional development" (p. 207)

Thus, the research questions that guided this study were:

RQ 1: Are instructor characteristics associated with instructors' assessment literacy, the reported implementation of the FAAM components, and the perceived benefits of the FAAM?

RQ 2: Does the use of assessment strategies influence instructors' assessment literacy?

RQ 3: Are instructors' assessment literacy and experiences with the use of assessment strategies and resources associated with their reported implementation of the FAAM components and perceived benefits of the FAAM?

Methods

Participants

Overall, 159 faculty members completed the survey for an approximate estimated response rate of 16%. The highest faculty representation was from tenure-track (n=83, 26.5%), adjunct (n=57, 13.8%), occasional (n=14, 12.2%), and visiting faculty (n=5, 1.8%). Instructors identified as male (n=94, 59.1%) and female (n=64, 40.3%). One instructor selected "other" (n=1, 0.6%). The majority (54.1%) of instructors were 50 years or older, have taught for more than fifteen years (66%), and hold either a master's degree or a doctorate (96.9%). Additionally, over half of the sample was comprised of instructors from the College of Education, which has traditionally been the most extensive college at this university in terms of number of instructors.

Measure: The Survey

The survey themes included the benefits and challenges instructors experienced with the FAAM, the assessment strategies they used, their perspectives on classroom assessment, their background experiences with assessment, and their roles during the implementation of the FAAM. Specifically, the survey included 72 questions grouped into seven sections: a) Experiences with student assessment (6 questions); b) roles and attitudes of instructors (5) and students (5) during the FAAM implementation; c) assessment strategies (10); d) benefits (7) and challenges (5) of implementing the FAAM; e) the influence of the FAAM on instructors' approaches to assessment (12); f) instructors' AL (15); and g) demographic information (7). Demographic information included age, gender, years of teaching experience, level of education, work status, the college they attended, and the academic semesters they taught. The questionnaire was initially written in English and revised by three researchers from a North American university. Then,

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it was translated into Spanish and revised by three professors from a Colombian university. The final Spanish version was pilot-tested with another group of 10 university professors.

All the questions in the survey were in the form of selected responses, except for one open-ended question about additional assessment strategies instructors might have used that were not listed. Five out of the seven sections used a 5-point Likert scale. The section about experience with assessment strategies had four options: before the FAAM, during the FAAM, after the FAAM, and "I have never used it." Questions about instructors' experiences with student assessment and AL were adapted from the Approaches to Classroom Assessment Inventory (ACAI) (DeLuca, 2020). Two questions for the AL section were adapted from Popham's (2017) self-test on testing.

Data Collection

Two offices approved the development of this research study: The IRB Office at the American University and the Office of the Provost at the Colombian University, with which the principal investigator was affiliated. Initially, the Office of the Provost at the Colombian university under investigation emailed the link to the consent form and the survey to the deans of the seven colleges, who in turn emailed it to all their faculty members. Weekly reminders were sent during the 45 days the survey was available. Approximately 188 instructors consented to participate, but only 159 completed surveys. After 45 days, the survey link was deactivated, and the dataset was exported as an SPSS file, organized, and cleaned to proceed with the analysis.

Data Analysis

Multiple regression analyses were conducted to examine relationships among a set of predictor variables (IAL, use of assessment strategies and resources, and demographic characteristics) and three criterion

variables (perceived benefits of the FAAM, implementation of FAAM components, and IAL). Depending on the research question, AL was used either as a predictor variable or an outcome variable. Regression analysis for the third research question was conducted, controlling for teaching experience, gender, level of education, college, and teaching status. The "age" variable was not included after testing its null relationship with all the variables and its contribution to the model. Besides, information on this variable was given in ranges, and one of the ranges had only one response. Since instructor characteristics were nominal, they were dummy-coded for use in the regressions.

The cleaning and organization of the data implied running frequency distributions and measures of central tendency and dispersion to identify invalid, incomplete, and outlier survey responses. Nine scaled scores were created to conduct regression analyses that respond to the research questions. The scaled scores and their corresponding reliability coefficients were FAAM benefits (α=.88), FAAM challenges (α=.68), implementing FAAM components (α=.94), instructor roles (α=.83), student roles (α=.74), training on classroom assessment (α=.67), use of assessment strategies before the FAAM (α=.82), use of assessment strategies during and after the FAAM (α=.90), and IAL (α=.86). One item in each of the scales related to IAL, influences from implementing the FAAM, and student roles was deleted as they did not correlate well with the other items in the scale. Thus, according to George and Mallery's (2003) guidelines, Cronbach's alpha values for this survey show excellent (≥.90) internal consistency in two scales, good consistency (.80-.89) in four scales, acceptable (.70-.79) in one scale, and questionable (.60-.69) in two scales.

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Results

Correlational and regression analyses were used to examine the relationships among independent variables —such as demographic characteristics, IAL, and the use of assessment strategies —and dependent variables —such as the implementation of FAAM components, IAL, and perceived benefits of the FAAM. An examination of bivariate correlations among independent variables showed a statistically significant correlation between teaching experience and work status (r = -.25, p<.001), teaching experience and educational level (r = .21, p<.001), assessment strategies before and during (r = .32, p<.001), teaching experience and college (r = .20, p<.005), and assessment strategies before and educational level (r = .20, p<.005). All the dependent variables show significant positive correlations with each other (Table 1). No multicollinearity is observed as correlations among explanatory variables are lower than .7, and the Variance Inflation Factor (VIF) values are all around 1.0. Likewise, both negative and positive correlations are revealed among predictors.

Table 1. Bivariate Correlations.

	Work Status	Teach. Exp.	Educ. Level	College	Gender	Strateg. Before	Strateg. During	Benefits	FAAM Impl.	AL
IVs/ Predictors:										
Work Status	1	-0.25**	0.03	-0.06	0.07	-0.06	-0.06	-0.11	-0.11	-0.12
Teaching Exp.		1	0.21**	0.20*	0.11	0.12	0.10	0.01	-0.05	0.07
Education Level			1	0.00	-0.04	0.20*	0.00	0.06	-0.14	0.07
College				1	0.06	0.09	-0.02	-0.13	-0.18*	0.00
Gender					1	-0.13	-0.11	-0.25**	-0.21*	-0.47
Strategies Before						1	0.32**	0.10	-0.03	0.21*
Strategies During							1	0.28**	0.31**	0.33**
DVs:										
Benefits								1	0.72**	0.48**
FAAM Impl.									1	0.46**
AL										1

Instructor Characteristics Associated with IAL, FAAM Implementation, and FAAM Benefits

Table 2 displays the results of responses to the first research question. This regression analysis included the predictor variables of instructors' colleges, work status, educational level, gender, and teaching experience. Three models were created because there are three different dependent variables. IAL was the outcome variable for Model 1, implementation of the FAAM was for Model 2, and perceived benefits of the FAAM was for Model 3.

Overall, the results show that Model 1 was statistically significant (F(16,122) = 3,533, R2 = .32, p< .001), with predictors explaining 32% of the variance in IAL. The variables that contributed significantly to the variance in IAL were the colleges of Education (b = .78, p < .001) and Natural Science (b = .67, p < .05), the occasional teaching status (b = -.46, p < .05), and females (b = .43, p < .001). Thus, model 1 indicates that Natural Science College is .67 and the College of Education is .78 points higher than the College of Health (baseline group) with regard to IAL. Similarly, females are .43 points higher than males in IAL. Conversely, instructors on an occasional teaching status are .46 points lower than tenure teachers with reference to IAL.

Model 2 was also statistically significant (F(16,125) = 1,791, R2 = .19, p= .039) and explained 19% of the variance in the reported implementation of FAAM components. The variables that contributed significantly to the variance were the colleges of Education (b = .54, p < .05) and Law (b = .89, p < .05). That is, this model indicates that the School of Law is .90 and the School of Education is .54 points higher than the School of Health with regard to the implementation of the FAAM.

Model 3 explained 14% of the variance in the perceived benefits of the FAAM. However, this model was not significant (F(16,129) = 1,297, R2 = .14, p= .209). Similar to the previous model, the Colleges of

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Education (b = .63, p < .05) and Law (b = 1.03, p < .05) were the only significant predictors of the variance in the perceived benefits. That is, the School of Law College is 1.03, and the School of Education is .63 points higher than the School of Health with regard to the perceived benefits of the FAAM.

Table 2. Multiple Regression of IAL, Implementation, and Benefits of the FAAM.

Variable	Model 1 (DV=IAL)			Model 2 (DV= Implem.)			Model 3 (DV=Benefits)		
	b	β	S.E.	b	β	S.E.	b	β	S.E.
Constant	3.31**		0.21	3.22**		0.27	3.10**		0.31
Colleges									
Natural Science	0.67*	0.20*	0.32	0.76	0.19	0.42	0.46	0.11	0.45
Law	0.61	0.20	0.31	0.90*	0.26*	0.39	1.03*	0.27*	0.44
Social Science	0.51	0.19	0.28	0.49	0.16	0.35	0.52	0.15	0.40
Economics	0.39	0.23	0.23	0.36	0.17	0.30	0.41	0.18	0.34
Education	0.78**	0.63**	0.20	0.54*	0.36*	0.27	0.63*	0.39*	0.30
Engineer	0.46	0.24	0.24	0.11	0.05	0.31	0.25	0.10	0.35
Work Status									
Adjunct	-0.13	-0.10	0.13	0.22	0.14	0.17	0.24	0.14	0.18
Occasional	-0.46*	-0.22*	0.19	-0.27	-0.11	0.25	-0.05	-0.02	0.28
Other work stat.	0.19	0.05	0.38	0.88	0.17	0.49	0.18	0.04	0.49
Educ. Level									
Specialization	0.00	0.00	0.29	-0.22	-0.05	0.38	-0.68	-0.15	0.42
Masters	-0.01	-0.01	0.12	0.22	0.14	0.15	-0.09	-0.05	0.17
Gender									
Female	0.43**	0.34**	0.11	0.08	0.05	0.15	0.20	0.12	0.16
Teaching Exp.									
TE_LT10 years	-0.04	-0.02	0.18	-0.09	-0.04	0.24	-0.09	-0.04	0.27
TE_LT15 years	-0.13	-0.07	0.15	-0.06	-0.03	0.19	-0.21	-0.09	0.21
TE_LT20 years	-0.08	-0.05	0.13	0.09	0.05	0.17	-0.07	-0.03	0.19
TE_LT5 years	0.19	0.05	0.31	-0.08	-0.02	0.36	-0.12	-0.03	0.40
R square	*0.317*			*0.186*			*0.139*		
Adjusted R2	*0.227*			*0.082*			*0.032*		
Significance	*<.001*			*0.039*			*0.209*		

Influence of the Use of Assessment Strategies on IAL

Instructors reported on the different assessment strategies they had used before implementing the FAAM and the assessment strategies suggested by the FAAM and used during the period this methodology was implemented. These two variables are the predictors in this regression analysis, and IAL is the outcome variable. Table 3 shows that the model is statistically significant ($F(2,136) = 3,729$, $R2 = .14$, $p < .001$) and explains 14% of the variance in IAL. Both independent variables are significant positive predictors of IAL. However, assessment strategies used during the FAAM implementation show a higher effect ($b = .68$, $p < .001$) than assessment strategies used before the FAAM ($b = .38$, $p < .005$. Thus, a one-unit increase in the use of assessment strategies before is associated with an increase of .38 in IAL, and a one-unit increase in the use of assessment strategies during the FAAM is associated with an increase of .68 in IAL. This finding is consistent with percentages of use of the strategies shown in Table 6 (Appendix A), where the highest use of all the strategies and resources took place during the implementation of the FAAM. Table 6 also reveals that the strategies and resources most frequently reported by instructors were self-assessments, peer assessments, and rubrics.

Additionally, regarding prominent aspects that comprise IAL, Table 9 (Appendix D) reveals that the highest averages are related to the benefits of feedback on both teaching ($M = 4.4$, $SD = 0.9$) and learning ($M = 4.4$, $SD = 0.8$), the beneficial use of multiple types of assessment ($M = 4.4$, $SD = 0.8$), the need for training on assessment practices ($M = 4.2$, $SD = 1.1$), the importance of self-assessments ($M = 4.2$, $SD = 0.9$), and the belief that Classroom assessment helps teachers identify the particular learning needs of any student ($M = 4.2$, $SD = 0.8$).

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Table 3. Multiple Regression Analysis for the Prediction of IAL.

Variable	Model (DV=IAL)		
	b	β	S.E.
Strategies before	0.38*	0.17*	0.18
Strategies during	0.68**	0.31**	0.18
R square	*0.139*		
Adjusted R2	*0.127*		
Significance	*<.001*		

IAL and Experiences with the Use of Assessment Strategies Associated with the Implementation and Perceived Benefits of the FAAM

This regression analysis examined how IAL and the use of assessment strategies (both before and during the FAAM) predicted the reported implementation and perceived benefits of the FAAM while controlling for instructor characteristics. As shown in Table 4, both models were statistically significant. Model 1 ($F(19,119) = 3,780$, $R2 = .38$, $p < .001$) explained 38% of the variance in the reported implementation of the FAAM. Model 2 ($F(19,119) = 2,997$, $R2 = .32$, $p < .001$) explained 32% of the variance in the perceived benefits of the FAAM. IAL was a significant positive predictor of the implementation ($b = .57$, $p < .001$) and benefits ($b = .60$, $p < .001$). The use of assessment strategies before the FAAM was a significant negative predictor of the reported implementation ($b = -.45$, $p < .005$). Hence, higher scores in the use of assessment strategies before are associated with lower scores in the implementation of the FAAM, while holding instructor characteristics constant. Regarding the influence of IAL, an additional one-unit increase in this variable is associated with increases of .57 in implementation and .60 in perceived benefits, while controlling for instructor characteristics.

Table 7 (Appendix B) shows that the highest averages in the survey responses for the perceived benefits of the FAAM are related

to instructors becoming more competent in using technology for assessment purposes ($M = 3.9$, $SD = 1.0$), students successfully completing their academic semester ($M = 3.8$, $SD = 1.1$), and instructors learning more about students' lives and learning needs ($M = 3.8$, $SD = 1.2$). Likewise, Table 8 (Appendix C) reveals that the highest averages in the survey responses for the lessons learned from implementing the FAAM are related to the need to promote more discussions and research on student assessment at the institutional level ($M = 4.3$, $SD = 0.9$), the prominent role of affective factors in the assessment process ($M = 4.0$, $SD = 0.9$), and awareness of the permanent or continuous nature of assessment ($M = 4.0$, $SD = 1.0$). Other implementation learnings reported by instructors included the importance of flexibility in assessment, the use of alternative evaluative practices, the provision of formative and timely feedback, and awareness of their own assessment practices and ways to improve them ($M = 3.9$, $SDs = 0.9$-1.0).

Table 4. Multiple Regression of FAAM Implementation and Benefits.

Variable	Model 1 (DV=Implem.)			Model 2 (DV= Benefits)		
	b	β	S.E.	b	β	S.E.
Constant	1.38*		0.43	1.02*		0.49
Assessment Literacy	0.57**	0.47**	0.11	0.60**	0.45**	0.13
Strategies before	-0.45*	-0.16*	0.22	-0.11	-0.04	0.25
Strategies during	0.34	0.13	0.22	0.35	0.12	0.25
Colleges						
Natural Sciences	0.29	0.07	0.39	0.07	0.02	0.44
Law	0.43	0.12	0.37	0.49	0.12	0.42
Social Sciences	0.04	0.01	0.33	0.04	0.01	0.38
Economics	0.05	0.02	0.27	0.11	0.05	0.31
Education	0.03	0.02	0.25	0.05	0.03	0.29
Engineering	-0.22	-0.10	0.28	-0.06	-0.02	0.32
Work Status						
Adjunct	0.24	0.15	0.15	0.29	0.17	0.17
Occasional	-0.05	-0.02	0.23	0.23	0.08	0.26
Other work stat.	0.70	0.14	0.44	0.31	0.06	0.50

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Variable	Model 1 (DV=Implem.)			Model 2 (DV= Benefits)		
	b	β	S.E.	b	β	S.E.
Educ. Level						
Specialization	-0.30	-0.07	0.35	-0.71	-0.16	0.39
Masters	0.22	0.14	0.14	-0.07	-0.04	0.15
Gender						
Female	-0.16	-0.11	0.14	-0.01	0.00	0.16
Teaching Exp.						
TE_LT5 years	-0.28	-0.06	0.37	-0.43	-0.09	0.41
TE_LT10 years	-0.01	-0.01	0.22	-0.09	-0.04	0.25
TE_LT15 years	0.08	0.04	0.18	0.02	0.01	0.20
TE_LT20 years	0.16	0.09	0.16	-0.01	0.00	0.18
R square	*0.376*			*0.324*		
Adjusted R2	*0.277*			*0.216*		
Significance	*<.001*			*<.001*		

In short, as Table 5 shows, after controlling for instructor demographic characteristics, a statistically significant amount of additional variance was accounted for in both models. That is, when the predictor variables (IAL and assessment strategies) were added, the *R* square became .19 higher regarding the FAAM implementation and .17 points higher for the FAAM benefits.

Table 5. R Square Changes for the Prediction of FAAM Implementation and Benefits.

Steps	Model 1 (DV=Implem.)				Model 2 (DV= Benefits)			
	R^2	Adjusted R^2	R^2 Change	*p*	R^2	Adjusted R^2	R^2 Change	*p*
1	0.18	0.08	0.18	0.053	0.15	0.04	0.15	0.176
2	0.38	0.28	0.19	<.001	0.32	0.22	0.17	<.001

Discussion

This study highlights five major findings concerning the association between instructors' demographic characteristics and the use of assessment strategies with IAL and the reported implementation and perceived benefits of the FAAM. First, instructor characteristics such as gender, teaching status, teaching experience, college, and educational level played a significant role in predicting IAL. Particularly, the variables of gender (female), college (School of Education and Natural Science), and the use of assessment strategies before and during the FAAM were positively associated with instructors' perspectives on classroom assessment. Inversely, the occasional teaching status was negatively associated with IAL. The lack of job security and permanence of faculty in this teaching status may explain this latter finding when compared to tenured instructors. This finding is in line with Villa Larenas and Brunfaut's (2023) claim that contextual working conditions and emerging assessment culture play a relevant role in the process of building teachers' AL.

Despite fewer female instructors than male counterparts, their contribution to the positive variance of IAL was significantly higher. This underscores the valuable role that female instructors play in shaping classroom assessment. The College of Natural Science, despite having the fewest participants in this study, also had a significant impact on IAL variance. Instructors' experiences with assessment strategies and resources before and during the FAAM were also associated with their classroom assessment approaches. However, the experience with assessment strategies and resources during the implementation of the FAAM was a more significant predictor of IAL than the experiences before the FAAM. Specifically, the assessment strategies and resources that best contributed to the significant prediction of IAL were the use of online discussion forums, virtual learning environments, mobile phones, and asynchronous assessments. This finding confirms the

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results from the qualitative interview research that preceded this study regarding the relevant role of resources such as mobile phones and social media in the implementation of the FAAM (Herrera, 2024) and aligns with previous research on the influence of digital technologies on classroom assessment (Dawson & Henderson, 2017; Russell, 2020; Salcines-Talledo *et al.*, 2020).

Second, the Schools of Law and Education were the only significant positive predictors of the implementation of the FAAM. This finding aligns with the results from the qualitative interviews, in which students reported that instructors from the colleges of Education and Law were more flexible and understanding of students' needs throughout the implementation of the FAAM than instructors from other colleges. An important lesson learned from implementing the FAAM was with regard to the institutional need to promote more discussions and research on student assessment, which is consistent with the demand of researchers and educators in Colombia (García & Meza, 2016; Herrera & Macias, 2015; Lopez & Bernal, 2009; Quintero, 2021; Rodríguez & Salinas, 2020). Other lessons from the implementation related to the vital role of affective factors in the assessment process and the conviction that assessment is an ongoing process. The latter constitutes a fundamental principle of formative classroom assessment (Black & Wiliam, 2009; Cizek, 2010; Heritage, 2022).

Third, while IAL was found to be a significant positive predictor of the implementation of the FAAM components, the experience with assessment strategies was negatively associated with this outcome variable, holding instructor characteristics constant. IAL also significantly impacted the benefits of the FAAM while controlling for demographic characteristics. Notably, the perspectives on classroom assessment that may have guided instructors in the effective implementation of the FAAM were their belief in the power of feedback, students' self-assessment, the use of alternative forms

of assessment, training on assessment, and the purposeful use of assessment to identify students' learning needs. These perspectives are consistent with earlier studies on the positive learning effects of feedback (Heritage, 2018; Herrera *et al.*, 2022; Jonsson & Eriksson, 2019; Vattoy *et al.*, 2021), self-assessment practices, and other forms of alternative assessment (Brown & Abeywickrama, 2019; Cheong *et al.*, 2023; Nicol, 2009; Hansen, 2014).

Fourth, it is essential to highlight the significant role of some variables in predicting the outcomes of this study. For example, the School of Education became a significant predictor of all outcome variables. Remarkably, the FAAM was born from the discussion between instructors and students from the School of Education to plan pedagogical actions to contend with the impact of the pandemic. Later, participants from other colleges joined the discussion, and it finally became an institutional educational project. Also, some of the guidelines proposed in the FAAM were based on research conducted by faculty members from the College of Education. Likewise, IAL was another significant positive predictor of both the reported implementation and perceived benefits of the FAAM. Regarding instructors' demographic characteristics, the most influential predicting variables were college and gender. Findings from earlier studies on the influence of instructors' gender on learning have identified no differential effects or mixed effects, determining the higher role of females or males (Clayson, 2020; Hoffmann & Oreopoulos, 2009).

Fifth, IAL became not only the most influential explanatory variable but also the outcome with the highest number of significant predictors. Similarly, a set of predictors played a significant influence on the reported implementation of the FAAM. On the contrary, the outcome of the perceived benefits of the FAAM was associated only with IAL while controlling for demographic variables. One of the reported benefits of the FAAM was the development of competence in using technology for assessment purposes. Previous research has

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indicated the feasibility and benefits of formative assessment practices conducted through digital technologies (Craig & Rehman, 2023; Wylie & Lyon, 2020). Other reported benefits were the possibilities offered by the FAAM for instructors to learn more about their students' personal and learning needs and for students to complete their academic term successfully despite the negative impacts of the pandemic on their lives in general and education in particular.

Conclusion

This study has shown the fundamental role of IAL in the teaching and learning process at a higher education institution during a time of social constraints. IAL has been presented throughout this research as a construct that represents instructors' perspectives on classroom assessment or, in a more technical definition, as instructors' understanding of the principles, concepts, and practices of a sound classroom assessment approach. Instructors build their AL by attending courses on student assessment at their pre-service teacher stage, professional training during their in-service teaching experience, or by observing their teachers during their student careers. This research has shown that instructors' exposure to different formative and alternative assessment principles, strategies, and resources suggested by the FAAM contributed to their enhancement of IAL. To a lesser degree, assessment-related experiences before the FAAM also enriched their perspectives on formative assessment practices.

Assessment principles, strategies, and resources that promote a formative and alternative classroom assessment approach include the use of digital technologies, especially those frequently used by students, such as mobile phones and social media, the provision of quality feedback, and the implementation of self-assessment. Additionally, instructors believe that student assessment is an ongoing process that involves not only cognitive processes but also

affective factors. Finally, despite instructors' enhanced understanding of formative classroom assessment principles and practices, they agree that further discussions and research in classroom assessment must be promoted within this academic community. Thus, the FAAM constituted an opportunity for students to continue their education in a way that could replicate the quality of the in-person mode before the pandemic and for instructors to strengthen their competency in formative and alternative assessment approaches to student learning.

Appendix A: Assessment Strategies and Resources

Table 6. Assessment Strategies used Before, During, or After the FAAM; or Never used.

Assessment strategies and resources	Before		During		After		Never	
	n	%	n	%	n	%	n	%
Asynchronous Assessment/ Take-Home Tests	60	24.0	102	40.8	67	26.8	21	8.4
Cell Phones for Assessment Purposes	30	14.6	84	40.8	52	25.2	40	19.4
Learning Portfolios	57	23.5	92	37.9	70	28.8	24	9.9
Online Discussion Forums	30	14.6	96	46.6	49	23.8	31	15.0
Open Book Tests	71	29.3	77	31.8	62	25.6	32	13.2
Peer Assessments	71	28.1	84	33.2	68	26.9	30	11.9
Rubrics	75	26.9	95	34.1	84	30.1	25	9.0
Self-Assessments	84	29.2	93	32.3	89	30.9	22	7.6
Social Media	38	17.6	75	34.7	54	25.0	49	22.7
Virtual Learning Environments (Google Classroom, Sakai, etc.)	61	21.9	116	41.7	97	34.9	4	1.4

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Appendix B: Benefits of the FAAM

Table 7. Benefits of the FAAM.

	M	Mdn	Mo	SD	Min.	Max.
The FAAM helped reduce students' anxiety levels regarding assessment and grading.	3.6	4.0	4.0	1.1	1	5
The FAAM allowed students to participate more actively in assessment decisions and practices.	3.3	3.0	4.0	1.1	1	5
The FAAM allowed instructors to learn more about students' lives and learning needs.	3.8	4.0	4.0	1.2	1	5
As a result of implementing the FAAM, instructors became more competent in using technology for assessment purposes.	3.9	4.0	4.0	1.0	1	5
The FAAM promoted inclusion and equity for students.	3.5	4.0	4.0	1.1	1	5
The FAAM stimulated instructors' creativity and empathy.	3.7	4.0	4.0	1.1	1	5
Thanks to the FAAM, students were able to complete their academic semester successfully.	3.8	4.0	4.0	1.1	1	5

Appendix C: Implementation of FAAM Components

Table 8. Implementation of the FAAM.

	M	Mdn	Mo	SD	Min.	Max.
I gained a deeper understanding of what formative assessment entails.	3.8	4.0	4.0	0.9	1	5
I learned about the benefits of flexibility in the assessment process.	3.9	4.0	4.0	1.0	1	5
I became more aware of my assessment practices and ways to improve them.	3.9	4.0	4.0	1.0	1	5

	M	Mdn	Mo	SD	Min.	Max.
I learned to implement self-assessment and peer-assessment procedures in my classes.	3.6	4.0	4.0	1.0	1	5
I tried to use alternative forms of student assessment more frequently.	3.9	4.0	4.0	0.9	1	5
I tried to provide formative and timely feedback to my students.	3.9	4.0	4.0	0.9	1	5
I understood that affective factors are critical in the assessment process.	4.0	4.0	4.0	0.9	1	5
I realized that I need more training in the area of student assessment.	3.7	4.0	4.0	1.0	1	5
I learned that assessment comprises quantitative components (grades, scales, points, etc.) and qualitative components (concepts, comments, etc.).	3.8	4.0	4.0	1.1	1	5
I believe that the university needs to promote more discussions and research on student assessment.	4.3	4.0	5.0	0.9	1	5
I learned that assessment is a continuous process.	4.0	4.0	5.0	1.0	1	5

Appendix D: Instructors' Perspectives on Classroom Assessment

Table 9. Instructors' AL.

	M	Mdn	Mo	SD	Min.	Max.
The primary purpose of classroom assessment is to assign a grade or rating to student work.	3.7	4.0	5.0	1.3	1	5
Assessment feedback enhances the student learning process.	4.4	5.0	5.0	0.8	1	5
Assessment feedback enhances the teaching process.	4.4	5.0	5.0	0.9	1	5
Students should be involved in assessing their own work.	4.2	4.0	5.0	0.9	1	5
Students are able to provide useful and accurate feedback to their peers.	3.8	4.0	4.0	1.0	1	5

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	M	Mdn	Mo	SD	Min.	Max.
Teachers should use different types of assessment to gain a more comprehensive picture of student learning.	4.4	5.0	5.0	0.8	1	5
Assessment should be conducted at the end of a unit of instruction or the end of a course.	3.3	4.0	4.0	1.4	1	5
Classroom assessment helps teachers identify the particular learning needs of any student.	4.2	4.0	4.0	0.8	1	5
Teachers should use only types of assessment that can be scored objectively, such as multiple-choice tests and quizzes.	3.9	4.0	5.0	1.2	1	5
Classroom assessment involves teachers making judgments about how much a student is learning relative to other students.	2.8	3.0	2.0	1.2	1	5
Assessment disrupts the teaching and learning process.	4.0	4.0	5.0	1.1	1	5
Classroom assessment is critical to lesson plan development and curriculum implementation.	4.1	4.0	4.0	0.9	1	5
Teachers do not require training to carry out effective assessment practices.	4.2	5.0	5.0	1.1	1	5
Assessment is an enjoyable experience that can motivate students to do their best.	4.1	4.0	4.0	1.0	1	5

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