The effectiveness of MOOCs through users' experience

Fernando Antonio de Melo Pereira
Advisor: Maria Aparecida Gouvêa

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Contextualization

MOOC (Massive Open Online Courses) is an emergent technology in education, a natural evolution of e-learning and it shows a disruptive way to learn.

A MOOC provide low cost and quality education to the masses, which justify a variety of motivations.

The evaluation of satisfaction based on theoretical models is determinant to verify if the users take advantage of the potential of the offered technology

Gaps

It is important to evaluate what motivates the user experience in online learning. Researches about e-learning are consolidated and they reached a mature level. By the other side, the MOOCs have many aspects that need development and correction

The MOOCs constantly change and have particularities, such as evaluation system, interaction by social media, the form of entry, among others.

There are numerous researches that evaluate e-learning services; however, it's a consensus in the literature that there are few studies that evaluate a MOOC under a management perspective focused on the user

Research question and objectives

What are the determinants that MOOCs users consider important to satisfactorily evaluate a course and decide to enroll in other courses?

General objective: Analyze the effectiveness of MOOCs from the perspective of users in relation to satisfaction and continuance of use.

(i) Investigate the variables that compose user performance and evaluation aspects of a MOOC;

(ii) Validate MOOCs Adherence Index through methods of measurement scale;

(iii) Identify distinct groups of users by demographic variables and rating profiles of items;

(iv) Validate the theoretical model which measures MOOCs satisfaction and continuance of use through user's experience.

Products

A reliable and reproducible research instrument will be developed, capable to measure effectiveness and success of a MOOC course. The study focuses on the management aspects of a course, the quality of a tool, performance and satisfaction of users, and others aspects that show relevant.

The empirical validation of a theoretical model allows detailed examination of the issue from a quantitative perspective, from training indicators and effective use of analytical tools for decision making

Another theoretical benefit is the use of constructs such as satisfaction and continuance intention of a service, that finds applicability in marketing studies, in use of information systems, use of public services, among others.

Key concepts of MOOCs

Definition of MOOC: Abeer and Miri (2014); Steffens (2015)

E-learning evolution: NIcholson (2007); Phelan (2015)

Epistemological view of MOOCs: Siemens (2005); Clara and Barbera (2014)

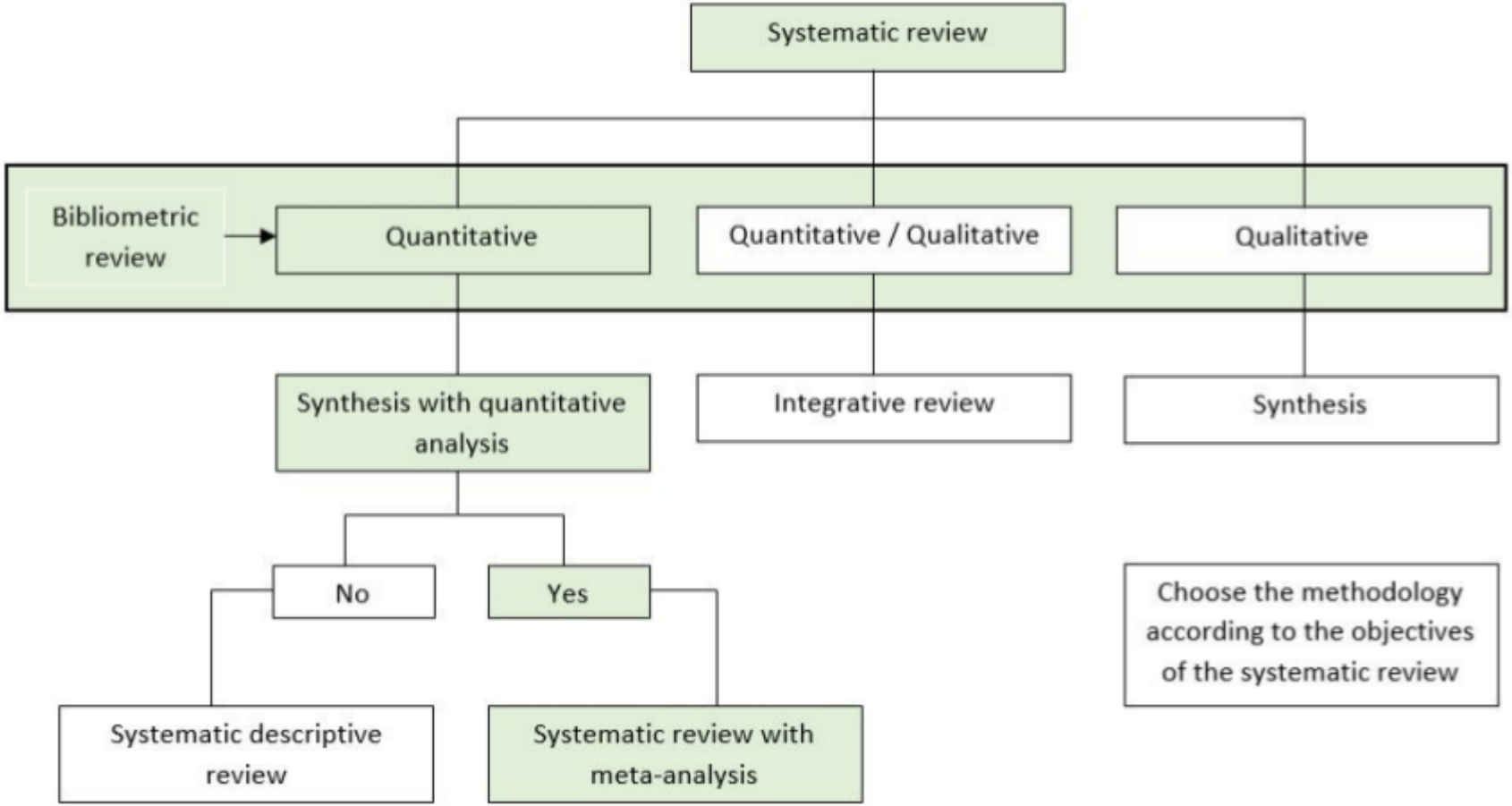
cMOOCs and xMOOCs: Alraimi, Zo and Ciganek (2015); Shen and Kuo (2015)

MOOCs challenges: Ventura, Bárcena and Monje (2014); Perna et al. (2014)

MOOCs in 2018: Clarke (2013); Spector (2014)

MOOCs business model: Radford, Coningham and Horn (2015); Terras and Ramsay (2015)

Systematic and bibliometric review

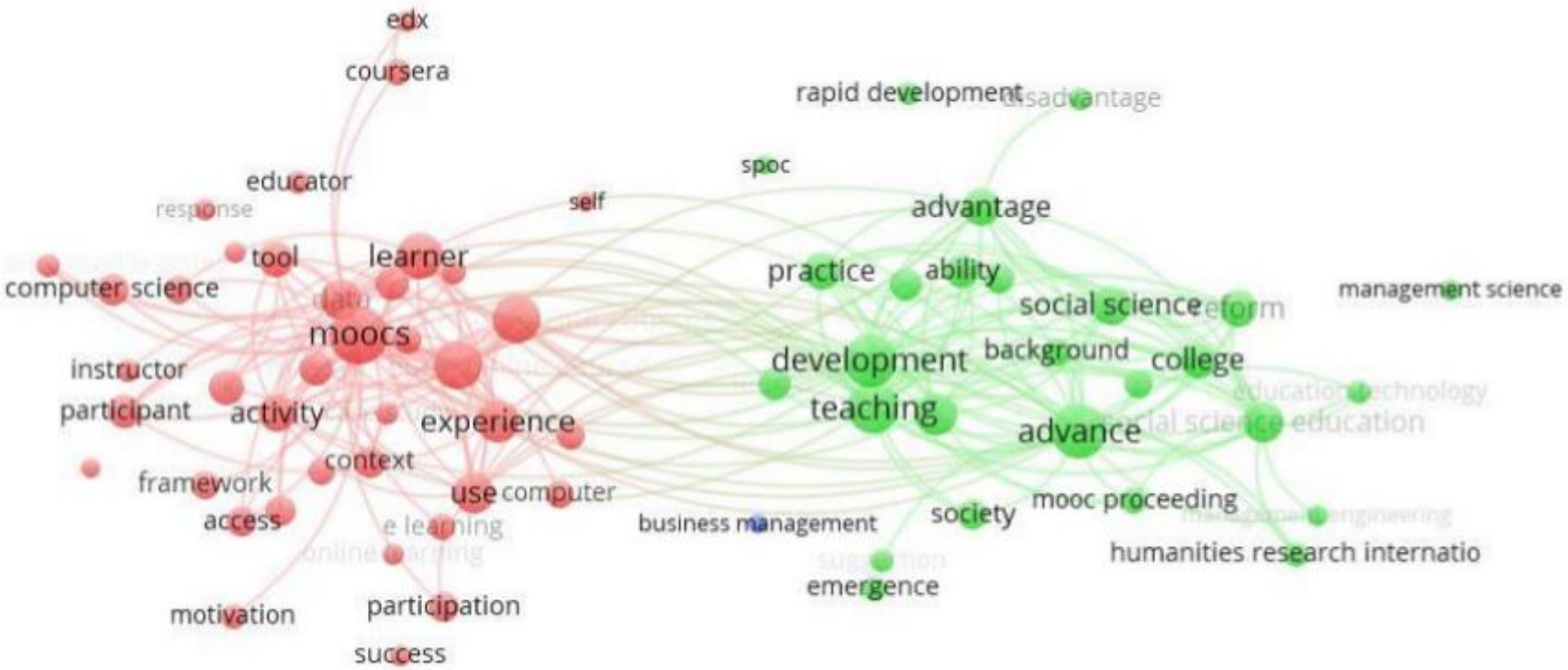


Systematic and bibliometric review

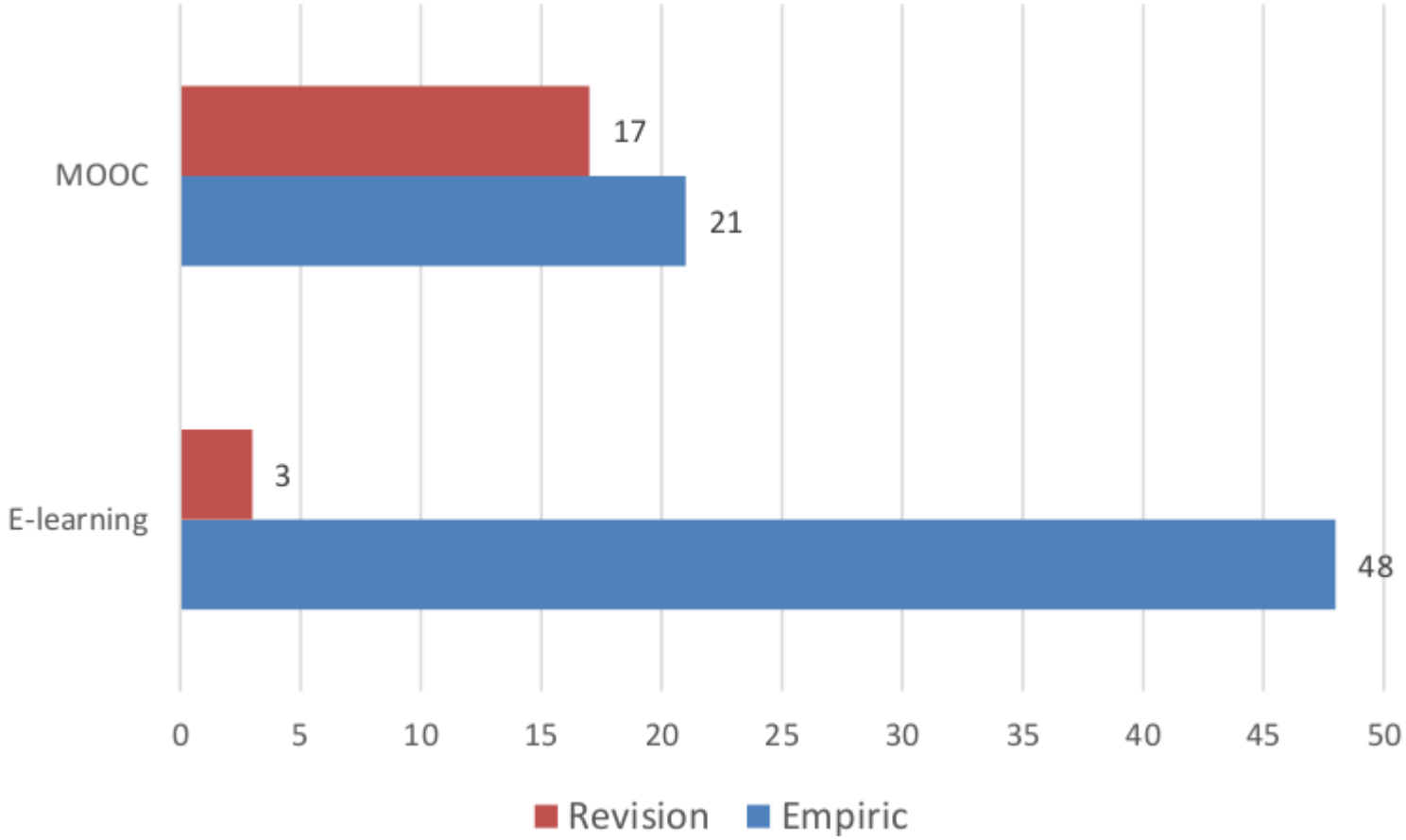
Systematic review protocol: relevance, problem, strategy collection, selection of primary studies, critical evaluation of the studies, analysis of results and conclusions

Bibliometric research form: primary source (Capes); Research strings (Keywords and time cut); Filters (keyword 1, revised by pairs, language, keywords together, full text available, initial lecture); secondary source (select and download studies)

Network about MOOCs: full text



Type of study



Dependent variables

Dependent variables	Qt.
Satisfaction	26
Continuance intention	19
Intention of use	7
Adoption	3
Performance	3
Readiness	2
Engagement	2
Effectiveness	2
Success	2

Quality of papers

x 1 = number of information present on item x of papers in group 1: low quality;

n 1 = number of papers in group 1: **31 studies**

x 2 = number of information present on item x of papers in group 2: high quality;

n 2 = number of papers in group 2: **27 studies**

Variable	Low quality	High quality	Z	p-value	Status
Software	20	20	-1.1010	0.1355	H0 not rejected
Sample	7	21	-4.3693	0.0000	H0 rejected
Scale	2	9	-2.7161	0.0033	H0 rejected
Model	22	23	-1.6480	0.0497	H0 rejected
Mean	12.75	18.25	-2.2329	0.0128	H0 rejected

Methodological procedures

This study can be characterized as empirical, of an original scientific nature and following the hypothetical-deductive method. The analytical approach of the research is quantitative., cross-section on time, by measuring the face of a social reality at a given moment, stressing that the use of disconfirmatory constructs.

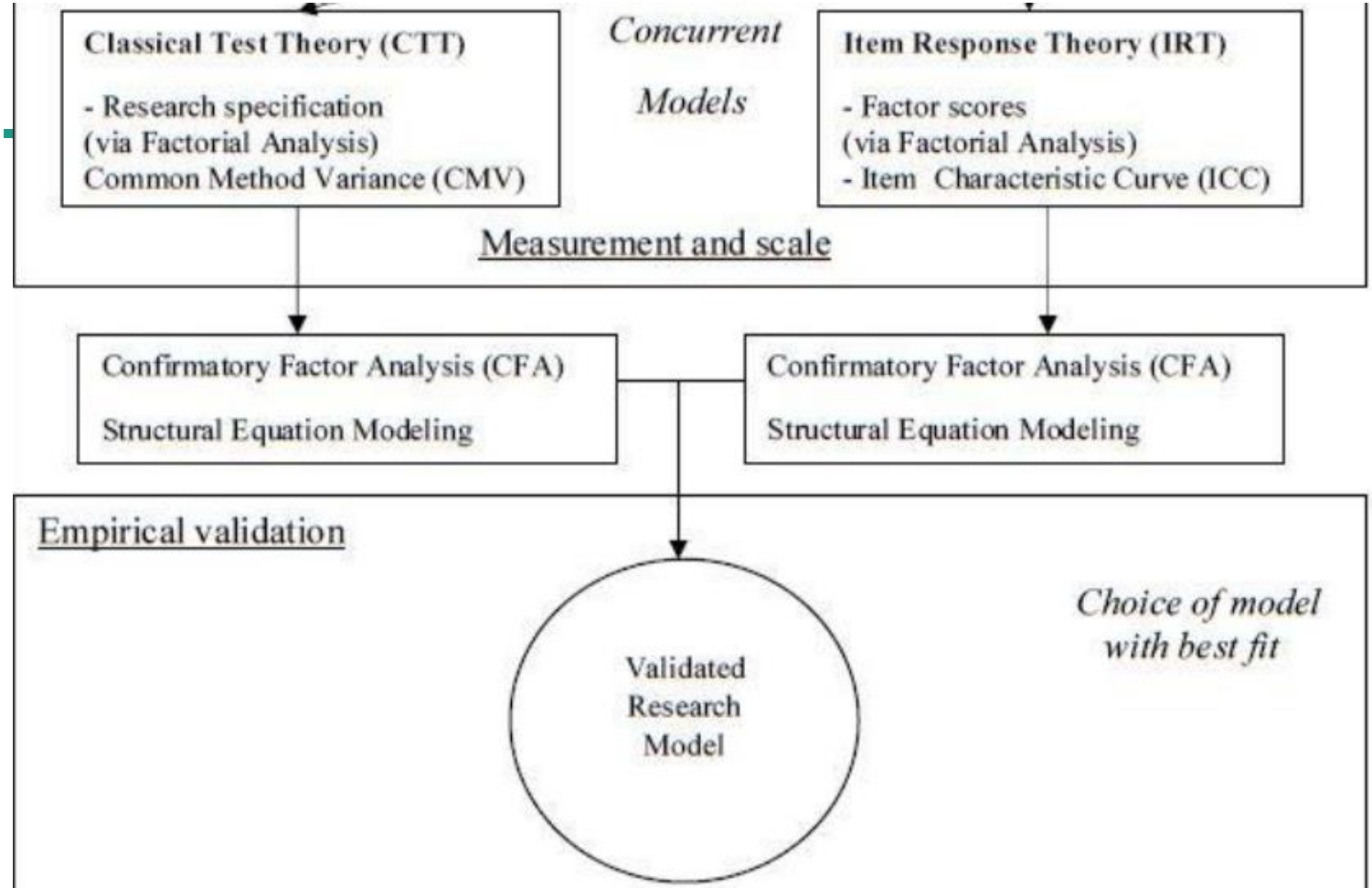
Public: The study covers students / users of MOOC courses offered free of charge or payment without the imposition of legal entities, who have already attended or are attending at least one course.

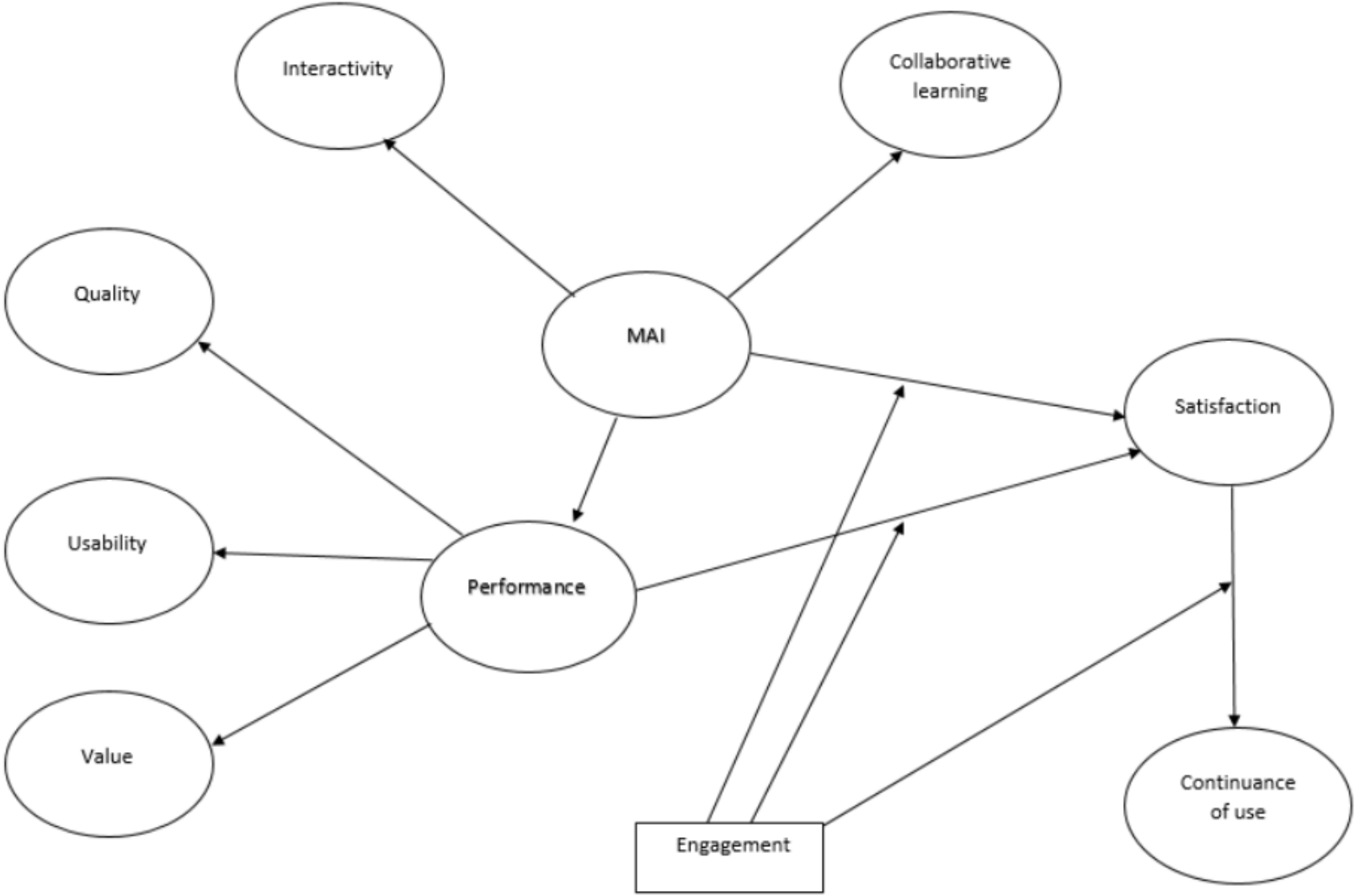
Strategy: The research instrument was sent to private Facebook groups. Each group corresponds to a MOOC course of the selected platforms. In all, 400 groups were selected, 4 in each test and 392 in the sample collection.

Sample size

Requirements	Reference values	Sample
Model complexity	31 predictor variables; statistical power = 0.95 and confidence level = 0.99	328
CBSEM	10 observations per manifest variable (10 x 37)	370
Moderators in model research	Multi-group analysis with 2 groups (x2)	740
Sample obtained		**890**

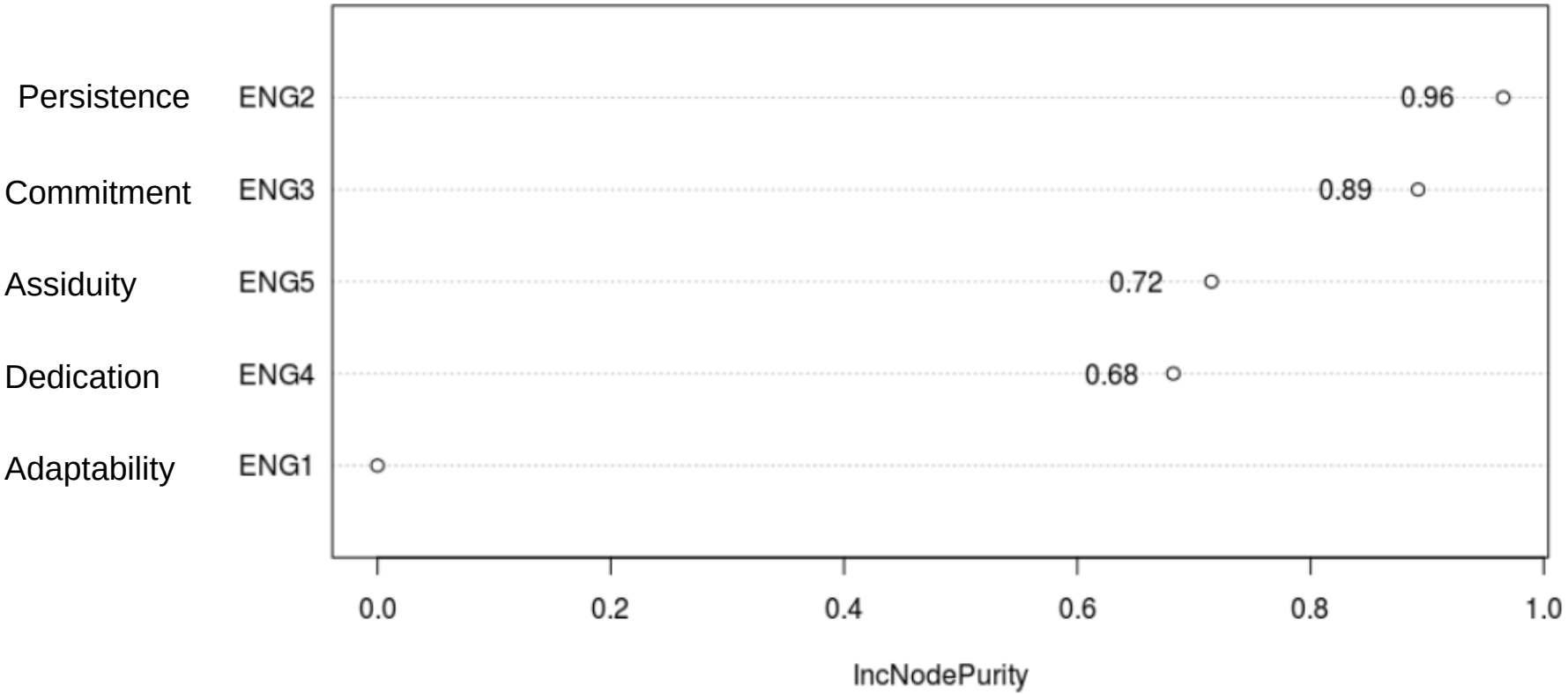
Part of study flowchart




Interactivity
Collaborative learning
Quality
MAI
Satisfaction
Usability
Performance
Value
Engagement
Continuance of use

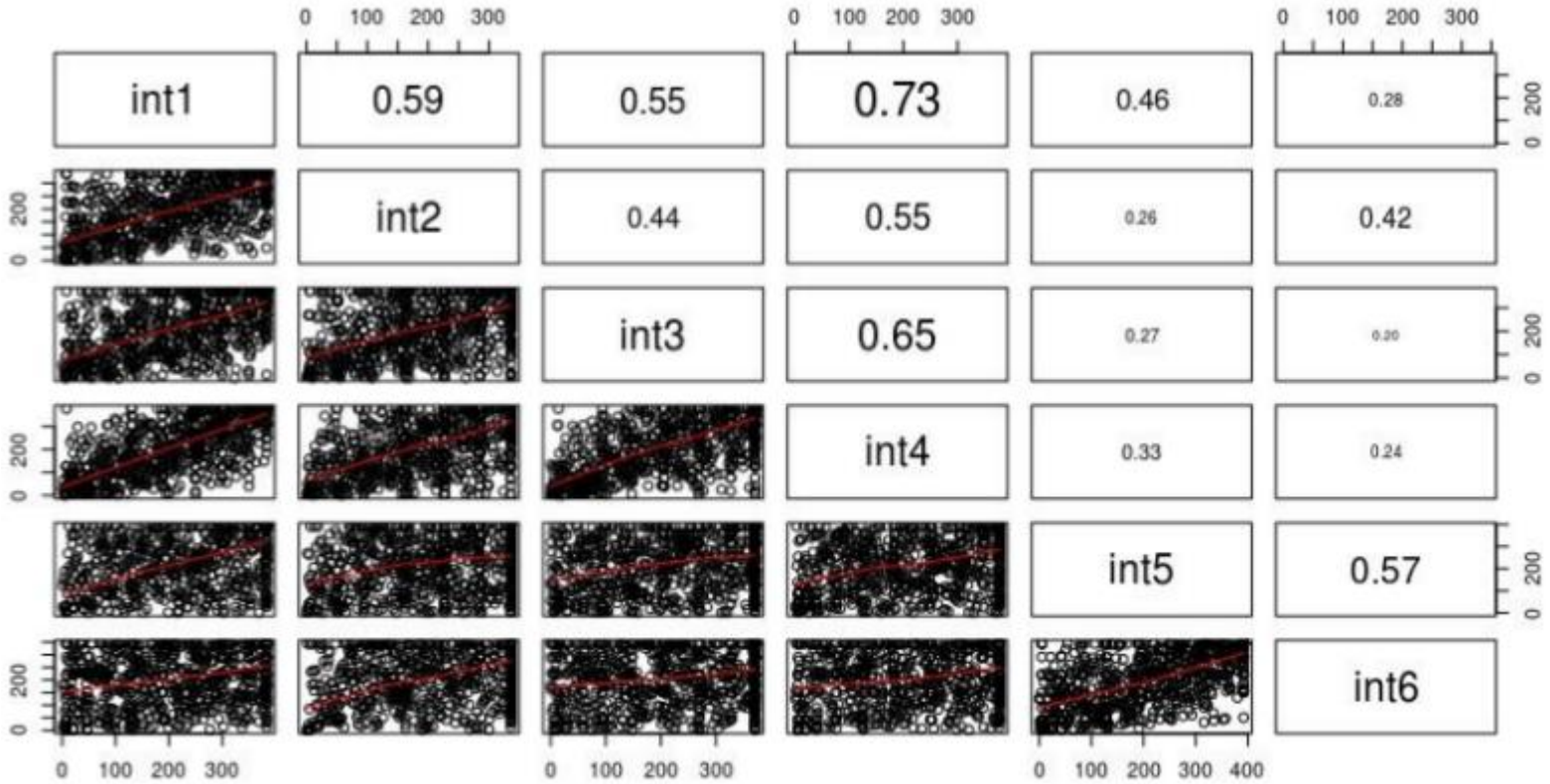
Results - Engagement

Random Forest: variance level

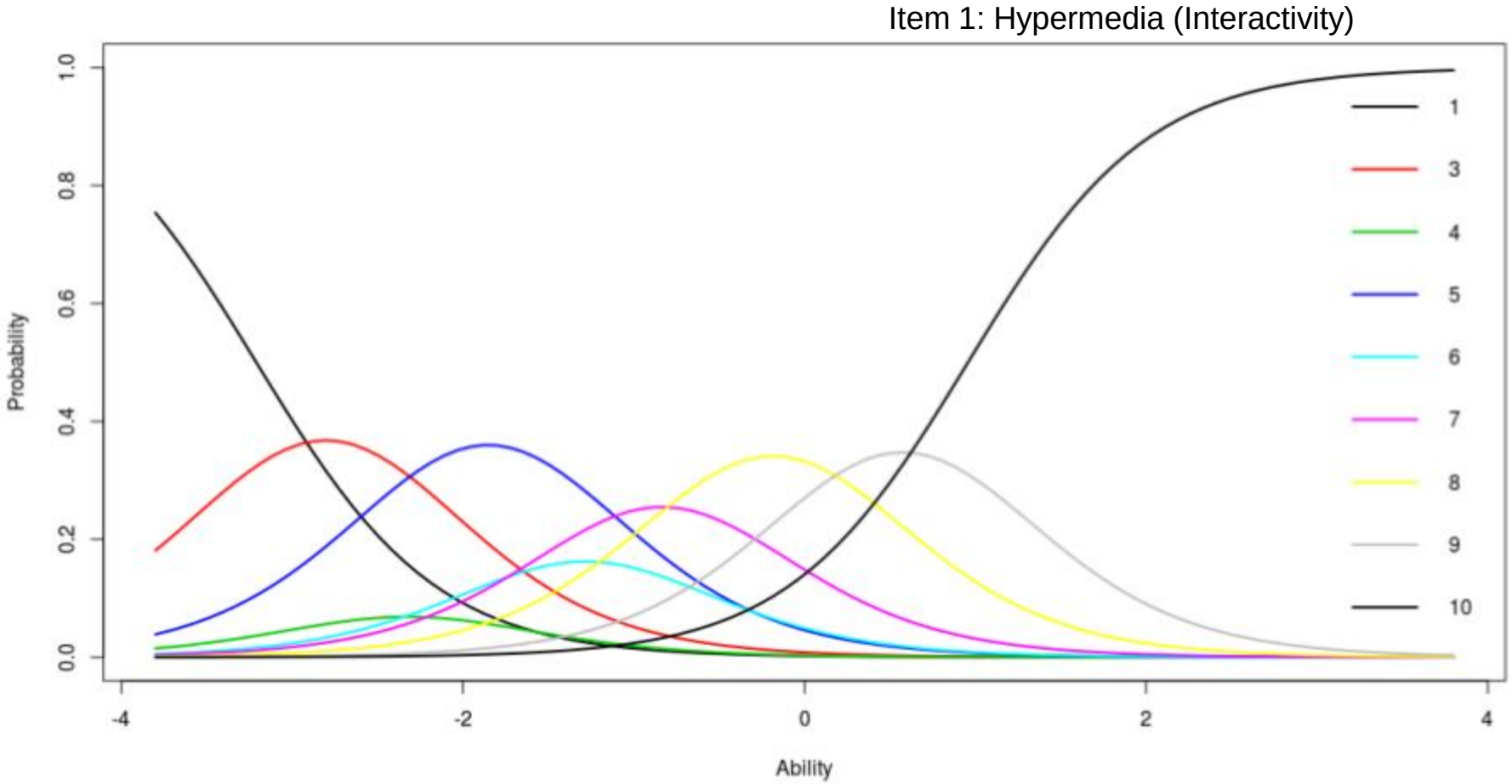


Correlations

Interactivity correlations

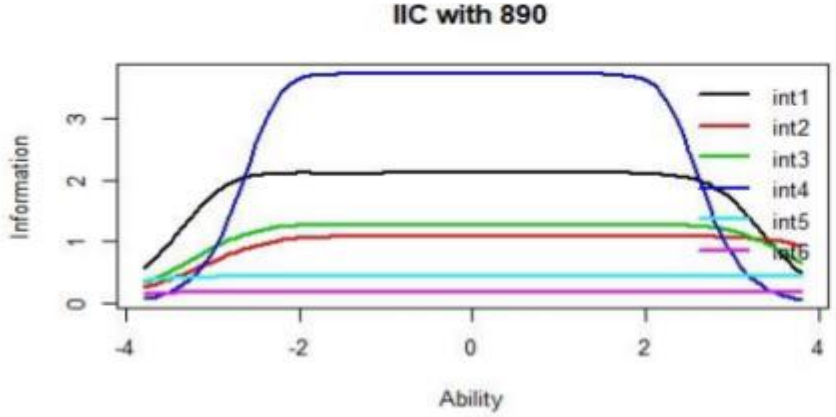


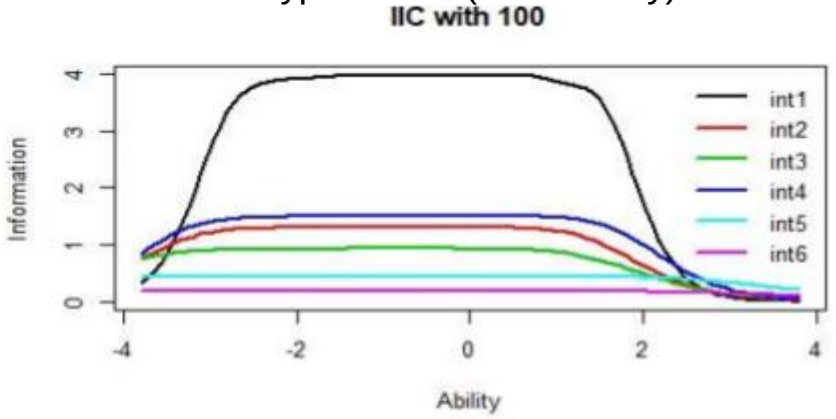
IRT - Item Characteristic Curve

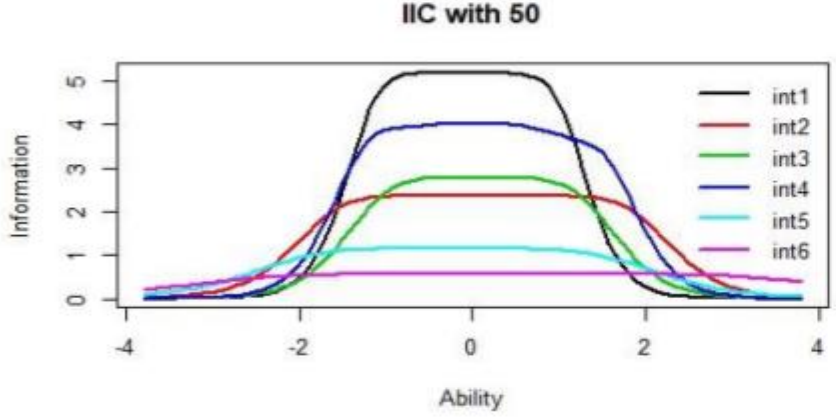


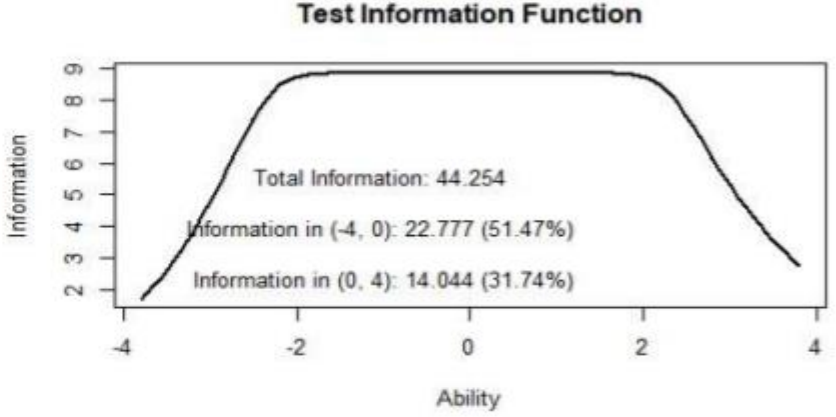
IRT - Item Information Curve

Item 1: Hypermedia (Interactivity)









CTT approaches

EFA -> Exploratory Factor Analysis

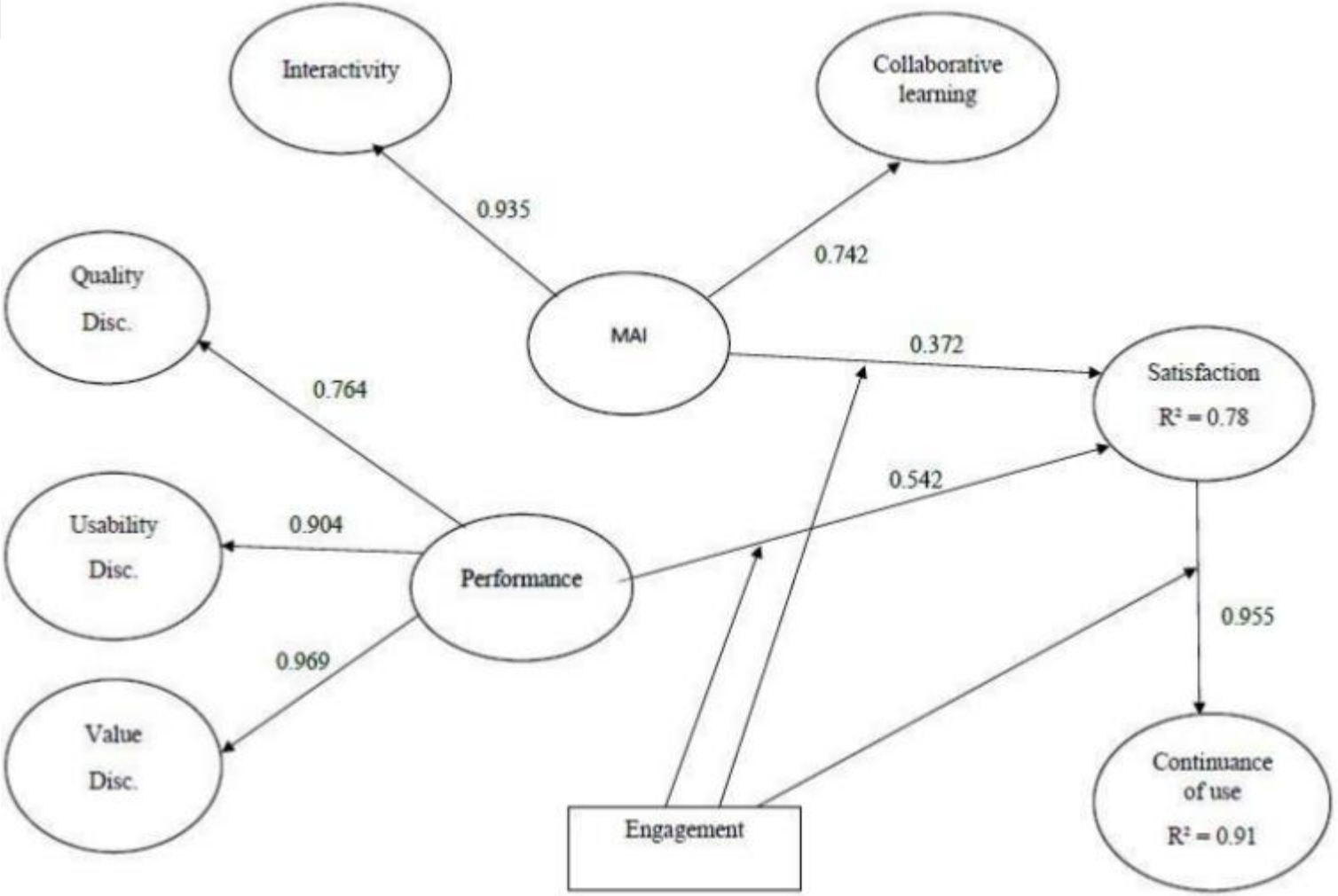
CMV -> Common Method Variance

VIF -> Variance Inflaction Factor

Summary of refinement

Variable	Stage per approach					
	IRT		CTT			
	ICC	IIC	EFA	VIF	CMV	CFA
Int5		x	x			
Int6		x	x			
Col2	x				x	
Col3	x				x	
Col6		x	x			
Col7		x	x			
Qua1	x				x	
Qua5		x				x
Qua6	x				x	
Usa6	x			x		
Val3	x				x	
Val4	x				x	
Diagnosis	The variables excluded in each approach (IRT and CTT) converge, and integrate the same structural model					

Structural model



Final considerations

The study provided an evaluation model of MOOCs from the perspective of users, admitting particularities in this teaching mode and taking advantage of the theoretical foundation of e-learning.

The research helps to consolidate the study of MOOCs from an empirical perspective and at the same time contributes to theoretical precepts on the subject by defining constructs and causal relationships

The study denotes an effort for the use of measurement methods and emerging approaches in the area of applied social sciences