

# SOLUTIONS TO IMPROVE THE QUALITY OF ACCOUNTING TRAINING IN ENTERPRISES IN THE CONTEXT OF DIGITAL TRANSFORMATION

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## ABSTRACT

In the context of rapid digital transformation in vocational education, improving the quality of enterprise accounting training has become an urgent requirement. This study aims to identify and measure the factors associated with students' satisfaction with the quality of enterprise accounting education at the Faculty of Finance and Accounting, College of Foreign Economic Relations, thereby proposing solutions to enhance training quality. A quantitative research approach was employed with 355 valid survey responses. The data were analyzed using SPSS through reliability testing with Cronbach's alpha, exploratory principal component analysis, and multiple linear regression. The results indicate that the research model explains 88.3% of the variance in the dependent variable "student satisfaction." The adjusted  $R^2$  is 0.882. Among the factors, three variables show positive and statistically significant associations: curriculum quality (Beta = 0.412), support services (Beta = 0.362), and lecturer quality (Beta = 0.188). Based on these findings, the study proposes key solutions to improve the quality of enterprise accounting education. Infrastructure was not statistically significant after adjustment for the other predictors (Beta = 0.022;  $p = 0.551$ ).

**Keywords:** Training quality, enterprise accounting education, student satisfaction, digital transformation, vocational education.

## 1. INTRODUCTION

Currently, digital transformation has become an important development direction in vocational education. The strong development of new technologies such as artificial intelligence (AI), big data, cloud computing, and intelligent automation is changing the way people learn, work, and interact. In light of this trend, vocational education institutions face the urgent need to innovate their training models and enhance the digital skills of their students to meet the workforce demands of the digital economy and the global labor market. Digital transformation requires coordinated changes in educational practices and institutional support [1], [2].

International evidence provides complementary perspectives. Yassin and Toumeh [3] examined accounting academics' and practitioners' perceptions of incorporating business intelligence tools into accounting education, highlighting curriculum adaptation and professional skills. In Vietnam, Pham et al. [4] linked e-learning service quality with satisfaction and loyalty. Al-Fraihat et al. [5] investigated several dimensions of e-learning success, while Gopal et al. [6] examined instructor quality, course design, feedback, and

expectations in relation to student satisfaction. Limbu and Pham's systematic review [7] further identifies positive links between e-learning service quality and satisfaction across pandemic-era studies.

General university e-learning research may not capture the combination of applied accounting tasks, curriculum sequencing, and administrative support experienced by vocational college students. The specific question addressed here is how four perceived quality dimensions are jointly associated with satisfaction among enterprise accounting students at the Faculty of Finance and Accounting, College of Foreign Economic Relations (COFER).

The study offers a contextual contribution by bringing curriculum, lecturers, infrastructure, and support services into one learner-centered model. The study concerns college education for enterprise accounting; it does not survey corporate employees undertaking in-house training.

## **2. THEORETICAL BACKGROUND AND HYPOTHESES**

### **2.1. Educational quality and satisfaction in a digital context**

In practice, three concepts that are often confused need to be clearly distinguished. "Digitization" is the process of converting information from a physical form to a digital form, such as scanning paper documents into electronic files. "Digitalization" is the use of technological tools to support management or teaching activities, for example, accounting software or learning management systems (LMS). "Digital transformation" involves broader changes in processes, methods, culture, and operating models based on digital technology, with the aim of creating new value [1]. The present study treats digital transformation as the institutional context; it does not measure transformation intensity or test its causal effect.

Training quality is a multidimensional concept, approached from various perspectives depending on the goals, target audience, and educational context. According to [8], quality in education can be understood in many ways, including "fitness for purpose" and "value for money". Student satisfaction is an evaluative response to educational experience. Oliver's expectation-disconfirmation perspective [9] helps explain how perceived performance relative to expectations can shape satisfaction. Satisfaction is consequently treated as one dimension of perceived quality, not a substitute for demonstrated accounting competence.

The DeLone and McLean information systems success model [10] distinguishes system quality, information quality, and service quality in explaining user outcomes. These distinctions help interpret why infrastructure and support may contribute differently to students' evaluations. Curriculum and lecturer quality extend this reasoning to the pedagogical conditions of vocational education.

### **2.2. Development of hypotheses**

Facilities and technological infrastructure are essential conditions for ensuring effective and sustainable training activities. In vocational education, especially in economic and technical fields such as accounting, investing in simulation labs, specialized software, online learning systems, electronic libraries, and stable internet connections can support access to learning. Such resources can provide opportunities for practice, while e-learning research identifies system and service conditions as relevant to student experience [4], [5]. H1: Perceived quality of physical facilities and digital infrastructure is positively associated with student satisfaction.

The training program is the core foundation guiding the entire teaching and learning process. A program is considered high-quality when it ensures modernity, up-to-date information, relevance to professional requirements, and the ability to integrate new

technologies. In the context of digital transformation, program content needs to be linked to digital competencies, data literacy, and flexible professional skills, to help students adapt to the digital work environment and the requirements of digitally enabled businesses [3]. Course design also features in research on online student satisfaction [6]. H2: Perceived curriculum quality is positively associated with student satisfaction.

The teaching staff is an important element in the effectiveness and quality of the training process. Lecturers are not only transmitters of knowledge but also guides, supporters, and motivators for students' learning. In the digital age, the competence of lecturers is not limited to professional expertise but also includes digital skills, the ability to design electronic learning materials, and the application of technology in teaching and learning assessment [12]. Instructor-related dimensions feature in empirical studies of satisfaction and e-learning success [5], [6]. H3: Perceived lecturer quality is positively associated with student satisfaction.

Digital learning support services are a crucial component reflecting the level of support and care provided to students throughout their studies. These support services include academic counseling, career guidance, job information, and online learning platforms. Vietnamese evidence and an international review link e-learning service quality with student satisfaction [4], [7]. H4: Perceived quality of digital learning support services is positively associated with student satisfaction. Figure 1 summarizes the four hypothesized associations, which are evaluated jointly in the regression model.

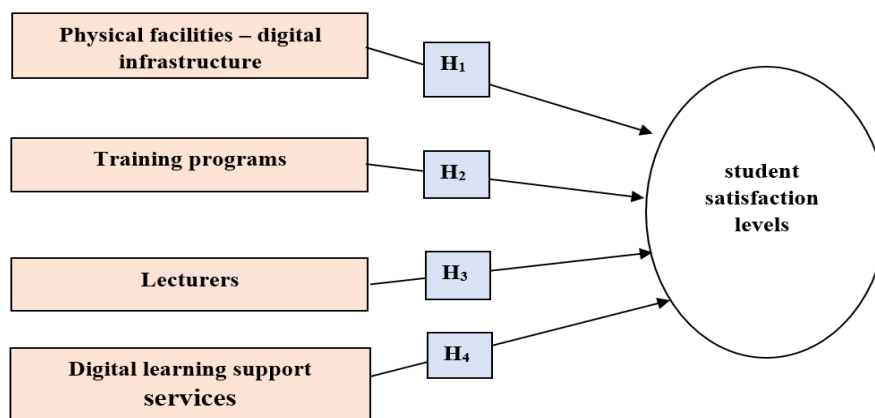


*Figure 1. Proposed model of perceived training quality and student satisfaction.*

*Source: authors' conceptual synthesis.*

### 3. METHODOLOGY

#### 3.1. Design and participants

To achieve the desired sample size, the authors used a questionnaire designed on Google Forms to send to students of the 27th and 28th cohorts studying Enterprise Accounting at the Faculty of Finance and Accounting at the College of Foreign Economic Relations (COFER). Students of the 29th cohort, due to their shorter study time and limited participation in specialized courses taught by faculty members, were not included in the survey. The cross-sectional survey yielded 355 valid responses. The completed questionnaire was used for a pilot assessment with 10 people to check its clarity and the information collected.

#### 3.2. Measures

The study used a 5-point Likert scale, with 1 representing strongly disagree, 2 disagree, 3 neutral, 4 agree, and 5 strongly agree. The questionnaire contained 20 observed variables

divided into five four-item scales. Table 1 presents the questionnaire items. The codes CSVC, CTDT, CLGV, DVPV, and SHL identify infrastructure, curriculum, lecturers, support services, and satisfaction, respectively.

*Table 1. Questionnaire items*

| Code  | Observed variable                                                                                                                         |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------|
| CSVC1 | The classrooms are fully equipped with modern equipment to support digital learning and teaching.                                         |
| CSVC2 | The network infrastructure, internet access, and student management system are stable and easy to use.                                    |
| CSVC3 | The extensive digital library and learning resources support students in their studies anytime, anywhere.                                 |
| CSVC4 | The practical training facilities (computer labs, accounting software, etc.) meet the needs of digital vocational training.               |
| CTDT1 | The program's objectives and learning outcomes are clear and aligned with the professional requirements of the digital environment.       |
| CTDT2 | The program content integrates digital knowledge, technological skills, and professional practice.                                        |
| CTDT3 | The program is regularly updated to meet the trends of digital transformation in accounting and finance.                                  |
| CTDT4 | The modules are logically arranged, facilitating flexible learning and digital learning.                                                  |
| CLGV1 | The instructors possess the professional qualifications and digital skills to meet the requirements of teaching in a digital environment. |
| CLGV2 | Lecturers frequently use technology (software, simulations, e-learning materials) in their teaching.                                      |
| CLGV3 | The instructors employ active teaching methods, encouraging students to learn proactively.                                                |
| CLGV4 | The instructors provide support, quick feedback, and fair assessment of learning outcomes.                                                |
| DVPV1 | The student management system (website, email, portal) provides complete and timely information.                                          |
| DVPV2 | The online academic and career counseling and technical support services are working effectively.                                         |
| DVPV3 | The support staff and academic administrators respond quickly, enthusiastically, and professionally when students need assistance.        |
| DVPV4 | The school regularly organizes learning activities, sharing sessions, and workshops on using digital platforms.                           |
| SHL1  | Students are satisfied with the current quality of training in the Business Accounting program.                                           |
| SHL2  | The knowledge and skills acquired help students confidently work in a digital environment.                                                |
| SHL3  | The curriculum meets expectations for career development and personal growth.                                                             |
| SHL4  | Students generally have a positive opinion of the program and the learning environment at the school.                                     |

*Source: study questionnaire. Domain interpretation is informed by [4], [8]–[10]; these sources are not claimed as the direct origin of every item.*

### 3.3. Analytical approach

After collecting the survey sample, the data were coded, cleaned, and processed using SPSS software; the data analysis process included: descriptive statistics; reliability assessment of the scale through Cronbach's alpha coefficient and corrected item–total correlations; exploratory principal component analysis with Varimax rotation; and multiple regression analysis. The exploratory analysis distinguished 16 predictor items from four satisfaction items. All four predictors were retained in the regression. Statistical significance was assessed at the 5% level.

## 4. RESULTS

### 4.1. Descriptive findings and internal consistency

After distributing the survey, 355 valid responses were collected and used for data analysis. Descriptive statistics show that the mean values of the observed variables ranged from 3.82 to 4.28 on a 5-point Likert scale. Table 2 consolidates the reliability results.

*Table 2. Internal consistency of the five scales*

| Scale                   | Items | Cronbach's $\alpha$ | Corrected item–total correlation |
|-------------------------|-------|---------------------|----------------------------------|
| Infrastructure (CSVC)   | 4     | 0.927               | 0.793–0.848                      |
| Curriculum (CTDT)       | 4     | 0.956               | 0.867–0.908                      |
| Lecturers (CLGV)        | 4     | 0.941               | 0.836–0.896                      |
| Support services (DVPV) | 4     | 0.950               | 0.865–0.901                      |
| Satisfaction (SHL)      | 4     | 0.964               | 0.877–0.933                      |

*Source: study's reported SPSS results; correlation ranges summarize the four items in each scale.*

Although internal consistency is high, alpha values of 0.950 or above for curriculum, support services, and satisfaction raise the possibility of redundant content. Alpha does not establish unidimensionality or discriminant validity [13]. All 20 items were retained in this analysis.

### 4.2. Exploratory component analysis

*Table 3. Suitability of predictor items for exploratory analysis*

| Statistic                       | Value    |
|---------------------------------|----------|
| Kaiser–Meyer–Olkin measure      | 0.958    |
| Bartlett's approximate $\chi^2$ | 7438.124 |
| Degrees of freedom              | 120      |
| p-value                         | < 0.001  |

The predictor-item KMO was 0.958, and Bartlett's test rejected an identity correlation matrix ( $\chi^2 = 7438.124$ ,  $df = 120$ ,  $p < 0.001$ ). The exploratory solution was reported as four components. For the separate satisfaction scale, the reported KMO was 0.864, with a one-component solution. These findings support preliminary exploration but do not establish adequate separation of all five constructs. A complete assessment also requires loadings, cross-loadings, retained eigenvalues, and explained variance; the summary statistics alone are insufficient for that conclusion.

### 4.3. Multiple regression and hypothesis assessment

Table 4. Multiple linear regression coefficients

| Predictor        | B     | SE    | $\beta$ | t     | p       |
|------------------|-------|-------|---------|-------|---------|
| Constant         | 0.089 | 0.083 | —       | 1.076 | 0.283   |
| Infrastructure   | 0.021 | 0.036 | 0.022   | 0.597 | 0.551   |
| Curriculum       | 0.415 | 0.050 | 0.412   | 8.253 | < 0.001 |
| Lecturers        | 0.198 | 0.048 | 0.188   | 4.151 | < 0.001 |
| Support services | 0.349 | 0.040 | 0.362   | 8.632 | < 0.001 |

*B* = unstandardized coefficient; *SE* = standard error;  $\beta$  = standardized coefficient. Values are rounded as in the reported output. Source: study's reported SPSS regression results.

Table 5. Fit statistics for the four-predictor model

| N   | R     | R <sup>2</sup> | Adjusted R <sup>2</sup> | Standard error of estimate | Durbin–Watson |
|-----|-------|----------------|-------------------------|----------------------------|---------------|
| 355 | 0.940 | 0.883          | 0.882                   | 0.33730                    | 2.273         |

The model explains 88.3% of the sample variance in satisfaction ( $R^2 = 0.883$ ); its adjusted  $R^2$  is 0.882. The unexplained sample variance is 11.7%, which may reflect omitted influences, measurement error, or random variation.

The unstandardized fitted equation retains all four predictors:

$$\hat{\text{SHL}} = 0.089 + 0.021\text{CSVC} + 0.415\text{CTDT} + 0.198\text{CLGV} + 0.349\text{DVPV}.$$

Curriculum, support services, and lecturer quality had positive coefficients (all  $p < 0.001$ ), supporting H2, H4, and H3, respectively. H1 was not supported: infrastructure had  $\beta = 0.022$  and  $p = 0.551$ . For standardized scores, a one-standard-deviation increase in curriculum quality is associated with a 0.412-standard-deviation increase in satisfaction, holding the other predictors constant.

The point estimates rank curriculum first, support services second, and lecturers third (Figure 2). This descriptive ordering does not demonstrate statistically significant differences between the coefficients. The Durbin–Watson statistic of 2.273 concerns residual serial correlation, not multicollinearity. Without reported variance inflation factors and residual diagnostics, strong claims that all regression assumptions are satisfied are not warranted.

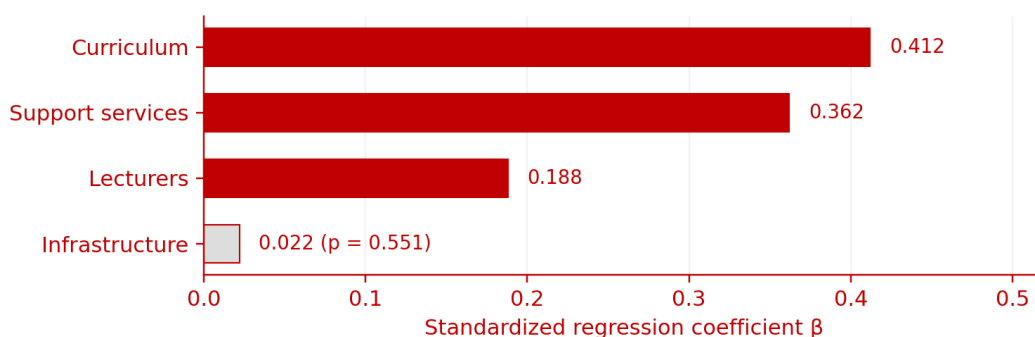


Figure 2. Standardized coefficients from the four-predictor model. Red bars:  $p < 0.001$ ; gray bar: not statistically significant.

Source: Table 4. Bars show point estimates, not confidence intervals.

## **5. DISCUSSION**

### **5.1. Interpreting curriculum, support, and lecturer associations**

The curriculum association is consistent with the proposition that students value a visible connection between learning tasks and occupational preparation. Yassin and Toumeh [3] provide a complementary professional and academic perspective on business intelligence in accounting curricula. The present learner-based result extends that discussion to satisfaction in a vocational college, but does not show that any particular software improves competence.

The positive support-service association accords with Pham et al. [4] and the broader synthesis by Limbu and Pham [7]. Responsive assistance may allow students to resolve access problems and understand academic requirements, thereby improving their experience. Lecturer quality remains significant after adjustment for the other dimensions, consistent with the instructional and feedback-related evidence reported by Gopal et al. [6]. A smaller standardized coefficient does not imply that lecturers are less necessary: curriculum implementation and support may themselves depend on lecturers' work.

### **5.2. Why infrastructure may not show a separate association**

The infrastructure result differs from research that identifies technical or system quality as an important aspect of e-learning success [5], [7]. The present scale combines classroom equipment, connectivity, a management system, digital resources, and practice facilities; it is broader than a narrowly defined LMS-quality measure. Its coefficient estimates the association remaining after curriculum, lecturer quality, and support have been included.

Several explanations merit investigation. Within one institution, common access conditions may provide limited between-student variation. Infrastructure may also function as a prerequisite whose benefits are realized through teaching and support. In addition, the infrastructure item concerning a student management system overlaps with the support item concerning portals, while digital resources may overlap with curriculum evaluations. Such shared content can reduce the unique association attributable to infrastructure. The results therefore do not justify reducing infrastructure provision or asserting that physical resources have become unimportant.

Follow-up interviews could contrast students with different access conditions and ask which interruptions hinder accounting practice, how they obtain technical help, and which resources affect participation. Explanatory interviews were not part of the present study.

## **6. IMPLICATIONS FOR TRAINING IMPROVEMENT**

### **6.1. Align curriculum renewal with observable accounting tasks**

To further improve the quality of enterprise accounting training, it is necessary to add and integrate digital content and digital skills into the training program. Specialized modules on electronic accounting, financial data processing, ERP software, and data analysis using tools such as Excel and Power BI should be added to the training program. The department needs to strengthen the connection between training and the needs of businesses by regularly surveying employers to update and adjust output standards to suit practical requirements. Tasks should include checking source documents, recording transactions, reconciling data, and explaining financial information. DigComp 2.2 [11] can inform general digital capabilities but requires accounting-specific assessment criteria. Assessment should cover accuracy, reasoning, responsible data handling, and explanation of results.

## **6.2. Improve access to academic and technical support**

Further development is needed in online academic and career counseling services, through webinars, professional skills workshops, and specialized seminars on digital transformation in the accounting field. Academic advisors or counselors need to enhance support and keep track of students' situations promptly through chat, email, or video calls, thereby creating an interactive, supportive, and friendly learning environment. To maximize the effectiveness of digital services, the school needs to train students in using digital support systems, helping them confidently master technology in their studies. Training sessions on using technology applications, accounting software, electronic libraries, and online learning tools should be organized regularly. Simultaneously, providing digital guidance materials in the form of videos, infographics, and tutorials can help students access and become familiar with the digitized learning environment. Implementation can be monitored through response times, recurring problem categories, and student feedback.

## **6.3. Strengthen lecturers' digital pedagogy**

It is necessary to focus on cultivating and developing the digital capabilities of faculty members through regular training courses on modern teaching technologies, designing digital learning materials, and applying learning management platforms and accounting software. Faculty members should be encouraged to participate in research and development projects applying technology in teaching, aiming at innovating content, methods, and tools for student assessment. DigCompEdu [12] offers a framework for identifying development needs. It is necessary to enhance communication and support for students during their learning process. Instructors should maintain an open attitude and respond promptly to student inquiries through digital platforms, email, or online office hours. Peer review of accounting lessons and joint development of assessment rubrics can support these activities. Scanning paper materials is digitization; distributing digital materials through an online platform is an application of digital technology. Digital transformation requires coordinated redesign of teaching, assessment, and support.

## **6.4. Maintain infrastructure and evaluate changes before expansion**

Reliable connectivity, functioning practice computers, appropriate software access, and accessible learning materials should remain baseline commitments. Improvements should respond to documented barriers rather than the non-significant coefficient alone. A staged evaluation can compare student experience before and after a curriculum or support intervention while also examining task performance. Longer-term evaluation should include employer feedback and graduate outcomes.

# **7. LIMITATIONS AND FUTURE RESEARCH**

The limited scope of the study means that the results cannot be generalized to the entire vocational education system. The sample is confined to two cohorts in one faculty. Findings may inform institutions with comparable curricula, learner profiles, and support arrangements, but colleges with constrained connectivity, different student employment patterns, or different employer partnerships may exhibit other associations.

The cross-sectional, self-report design limits causal inference and leaves common-method influences unresolved. Satisfaction is not equivalent to measured digital competence, learning achievement, or employability. Very high alpha coefficients and overlapping predictor–outcome content require particular attention. Future instrument development should use cognitive interviews to separate access, teaching, services, and satisfaction; examine item correlations; remove redundant wording on substantive grounds; and validate

the revised instrument in an independent sample. Confirmatory factor analysis and fuller regression diagnostics would strengthen the evidence. Expectations, disconfirmation, and digital competence were not measured separately. The mechanisms discussed and proposed interventions require subsequent evaluation.

Future models could examine perceived employability, the quality of internships, industry networking opportunities, prior digital skills, and financial or device-access constraints. Longitudinal measurement could clarify whether improved services precede higher satisfaction, while linked performance assessments could test whether favorable perceptions accompany better accounting competence.

## 8. CONCLUSION

Among 355 surveyed enterprise accounting students at COFER, curriculum quality, digital learning support services, and lecturer quality were positively associated with satisfaction in a model that also included infrastructure. Curriculum had the largest standardized point estimate. Infrastructure was not statistically significant conditional on the other dimensions, but this does not establish that it lacks educational value. The findings support a coordinated improvement agenda centered on relevant accounting tasks, responsive assistance, and effective digital pedagogy while maintaining basic access. Wider application requires stronger measurement validation, comparative data, and evaluation of actual learning outcomes.

## REFERENCES

- [1] G. Vial, "Understanding digital transformation: A review and a research agenda," *The Journal of Strategic Information Systems*, vol. 28, no. 2, pp. 118–144, 2019. <https://doi.org/10.1016/j.jsis.2019.01.003>
- [2] OECD, *OECD Digital Education Outlook 2023: Towards an Effective Digital Education Ecosystem*. Paris: OECD Publishing, 2023. <https://doi.org/10.1787/c74f03de-en>
- [3] M. M. Yassin and A. A. Toumeh, "Innovative approaches to accounting education: Incorporating business intelligence tools," *Cogent Business & Management*, vol. 11, no. 1, Art. no. 2414851, 2024. <https://doi.org/10.1080/23311975.2024.2414851>
- [4] L. Pham, Y. B. Limbu, T. K. Bui, H. T. Nguyen, and H. T. Pham, "Does e-learning service quality influence e-learning student satisfaction and loyalty? Evidence from Vietnam," *International Journal of Educational Technology in Higher Education*, vol. 16, Art. no. 7, 2019. <https://doi.org/10.1186/s41239-019-0136-3>
- [5] D. Al-Fraihat, M. Joy, R. Masa'deh, and J. Sinclair, "Evaluating E-learning systems success: An empirical study," *Computers in Human Behavior*, vol. 102, pp. 67–86, 2020. <https://doi.org/10.1016/j.chb.2019.08.004>
- [6] R. Gopal, V. Singh, and A. Aggarwal, "Impact of online classes on the satisfaction and performance of students during the pandemic period of COVID 19," *Education and Information Technologies*, vol. 26, no. 6, pp. 6923–6947, 2021. <https://doi.org/10.1007/s10639-021-10523-1>
- [7] Y. B. Limbu and L. Pham, "Impact of e-learning service quality on student satisfaction during the Covid-19 pandemic: A systematic review," *Knowledge Management & E-Learning*, vol. 15, no. 4, pp. 523–538, 2023. <https://doi.org/10.34105/j.kmel.2023.15.030>

- [8] L. Harvey and D. Green, "Defining quality," *Assessment & Evaluation in Higher Education*, vol. 18, no. 1, pp. 9–34, 1993. <https://doi.org/10.1080/0260293930180102>.
- [9] R. L. Oliver, "A cognitive model of the antecedents and consequences of satisfaction decisions," *Journal of Marketing Research*, vol. 17, no. 4, pp. 460–469, 1980. <https://doi.org/10.1177/002224378001700405>
- [10] W. H. DeLone and E. R. McLean, "The DeLone and McLean model of information systems success: A ten-year update," *Journal of Management Information Systems*, vol. 19, no. 4, pp. 9–30, 2003. <https://doi.org/10.1080/07421222.2003.11045748>
- [11] R. Vuorikari, S. Kluzer, and Y. Punie, DigComp 2.2: The Digital Competence Framework for Citizens—With New Examples of Knowledge, Skills and Attitudes, EUR 31006 EN. Luxembourg: Publications Office of the European Union, 2022. <https://doi.org/10.2760/115376>
- [12] C. Redecker, European Framework for the Digital Competence of Educators: DigCompEdu, Y. Punie, Ed., EUR 28775 EN. Luxembourg: Publications Office of the European Union, 2017. <https://doi.org/10.2760/159770>
- [13] M. Tavakol and R. Dennick, "Making sense of Cronbach's alpha," *International Journal of Medical Education*, vol. 2, pp. 53–55, 2011. <https://doi.org/10.5116/ijme.4dfb.8dfd>