

DESIGNING 21ST CENTURY SKILL ASSESSMENT INSTRUMENTS FOR *USHUL FIQH* WITH E-PORTFOLIOS IN INDONESIAN PUBLIC UNIVERSITIES

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Abstract

The competencies of 21st-century students include critical thinking skills, creativity skills, communication skills, and collaboration skills. To achieve competencies, changes and improvements in learning components, especially assessment instruments, in ushul fiqh classes per se are essential. The learning of ushul fiqh has been so far predominantly conceptual and ended up in outcomes that prioritise quantity, not quality, especially in achieving the 4 (four) skills (4C) required by students to adapt in the 21st century. The research aims to develop 21st-century skills assessment instruments using e-portfolios based on contextual learning in ushul fiqh courses. This study also describes the results of validity testing with conformity factor analysis (CFA) and goodness of fit (GoF). It employed a research and development method with the ADDIE model. Data were collected through questionnaires with stratified random sampling of 200 students from the Islamic Education Programme in three public universities: Universitas Negeri Jakarta, Universitas Pendidikan Indonesia, Bandung, and Universitas Negeri Padang. The collected data were then analysed using confirmatory factor analysis and goodness of fit (GoF). The criteria for valid loading factor scores are ≥ 0.30 and T-Value ≥ 1.96 . The finding suggested that the e-portfolio assessment instrument can effectively measure critical thinking, creativity, collaboration, and communication skills in learning ushul fiqh. This is based on the results of the validity test on SEM, which showed a loading factor score of ≥ 0.30 and a T-value of ≥ 1.96 . In addition, the instrument also fulfils the GoF criteria, as many aspects have been fulfilled.

Keywords: *21st Century Skills, Ushul Fiqh Course, E-Portfolio, Contextual, Learning.*

INTRODUCTION

The direction of education in the 21st century differs from the previous century. Education in the 21st century hopes to prepare learners to enter the post-industrial era (Industrial Revolution 4.0) (Astuti et al., 2019). Experts have identified some of the skills required for the 21st century, which are information and communication skills, thinking and problem-solving skills, interpersonal skills, and self-direction, among others (Sahin, 2009). Some also mention four learning characteristics or the four 4Cst skills of the 21st century, such as thinking, creative thinking, collaboration, and communication skills (Rudianto et al., 2022; Astuti et al., 2019). Another research suggests technical skills, communication, collaboration, critical thinking, creativity, and problem-solving skills (van Laar et al., 2020).

With these demands, teachers need appropriate learning and assessment as it is a way to develop student skills (Nurdini et al., 2020).

The prominent aspects of supporting 21st-century soft skills are independent learning, communication, collaboration, critical thinking, digital literacy, cognitive and creativity, critical thinking, digital literacy, cognitive, and creativity (Garcia et al., 2020). This research takes the case of learning *ushul fiqh* as a compulsory course in the Islamic Religious Education Study Programme at Public Universities in Indonesia, especially in the three sample public universities. *Ushul fiqh* is identical to the process of development and thought productivity (Sadari, 2018). Based on the previous research, the development of *fiqh* learning (the science of *ushul fiqh* products) with a contextual approach is driven by the low interest of students upon following the lesson due to the use of traditional and boring methods. Therefore, it affects their level of understanding of the material (Zaenal Abidin et al., 2022).

Learning *fiqh* and *ushul fiqh* helps lecturers connect between the material they teach and real world situations by encouraging learners to make connections between the materials and its application in their lives as members of the family and society (Budiman et al., 2020). On the other hand, the value and implementation of *fiqh* is closely related to the daily lives of students. Even, Islamic law experts mention that the implementation of *fiqh* also needs contextual understanding to ensure that Islamic law suits the times and places. Therefore, it is necessary to develop learning with a contextual approach to the study of *fiqh* including the subject of *ushul fiqh* so that students can relate it to everyday reality.

Nonetheless, there is currently relatively little focus on critical thinking in Islamic education. Sulaiman and Syakarofath stated that the students from Muslim countries, such as Saudi Arabia, Morocco, including Indonesia, are typically low in critical thinking. Their critical thinking is way lower than that of the students from Western countries. It is alleged that this phenomenon is caused, among others, by the tradition of Islamic education, which tends to be pessimistic and demands total obedience, influencing the thinking style of students to completely obey without any questions (Sulaiman & Syakarofath, 2018). Critical thinking in *fiqh* is still considered taboo. In the science of *fiqh*, critical thinking is vital. The rapid changes of the times have brought new legal cases that have never happened in the previous era in various lifelines (Rohman & Kusaeri, 2021).

In the context of 21st-century skills, creativity is one of the most sought-after life and work skills of the 21st century. The ability to think innovatively, problem solve, or think critically is the utmost ability for global citizens in a diverse society. Since the beginning, the ability to think creatively has been one of the most essential skills of the future, especially in the era of the covid 19 pandemic with the emergence of lockdowns and crises, this skill has become indispensable in making decisions (Gafour & Gafour, 2020).

This current research aims to design an authentic assessment model to measure the achievement of 21st-century skills with e-portfolio media in the *ushul fiqh* course, which uses a contextual learning approach. Authentic assessment as a model is considered more comprehensive. It can explore critical thinking skills in learning, as has been done (Rohman & Kusaeri, 2021) which examines critical thinking skills in *fiqh* using the Watson-Glasers Critical Appraisal (WGCTA) instrument. There are at least three approaches used in interpreting critical thinking: philosophy, cognitive psychology, and education (Rohman & Kusaeri, 2021). Using e-portfolios to collect data on the process and learning outcomes of *ushul fiqh* learning aligns with the demands of Information and Communication of Technology (ICT) skills that lecturers and students must have. Currently, the use of ICT is effective for communication purposes in learning, and efficient in terms of time and cost. It helps provide a range of knowledge that is up to date and easily accessible in a relatively quick time and, in some cases, even free of charge (Perbawaningsih, 2013)

METHODOLOGY

The study employed Research and Development to develop innovative learning models (Okpatrioka, 2023). By using stratified sampling method, the respondent data to test the

instrument validity test consisted of 200 students of Islamic Education Department of Universitas Negeri Jakarta (UNJ), Universitas Pendidikan Indonesia Bandung (UPI), and Universitas Negeri Padang (UNP). The validity tests for the instrument utilized Structural Equation Modelling (SEM) in Confirmatory factor analysis and Goodness of Fit (GoF) (Maydeu-Olivares & García-Forero, 2009).

The data analysis technique in this study using Confirmatory Factor Analysis (CFA) is one of the main approaches in factor analysis. CFA can be used to test the dimensionality of a construct (OCB). This test is used to measure the model (model measurement) so that it can describe the aspects and indicators in reflecting the latent variable, namely OCB by looking at the factor loading of each aspect that forms a construct. Confirmatory Factor Analysis (CFA) is also used to test the construct validity and construct reliability of the indicators (items) forming latent constructs.

In this study the CFA used was Second order confirmatory factor analysis. Second order CFA is a measurement model consisting of two levels. The first level of analysis is carried out from the latent aspect construct to its indicators and the second level of analysis is carried out from the latent construct to the aspect construct. Thus it can be known, the construct validity of indicators or learning outcomes of *ushul fiqh* with contextual learning methods through the weight of the factor load and the value of *t* count, calculating the reliability of the construct of *ushul fiqh* learning outcomes with contextual learning methods using the standard loading factor of each item and the error of each item.

RESULTS

Distribution of Respondents

The respondents in this study are from 3 (three) provinces in Indonesia with a total of 200 students from Islamic Education (IE): Universitas Negeri Jakarta (UNJ), Jakarta Province, Universitas Pendidikan Indonesia Bandung (UPI), West Java, Universitas Negeri Padang (UNP) in West Sumatra Province. The three Islamic Education Study Programmes are members of the Indonesian Association of Islamic Education Study Programmes.

Tabel 1: Respondent's Information

Participating in <i>Ushul Fiqh</i> and Fiqh Learning	N/Number	%
Universitas Negeri Jakarta	77	39%
Universitas Pendidikan Indonesia Bandung	73	37%
Universitas Negeri Padang	50	25%
TOTAL	200	100%

Design of *Ushul Fiqh* Learning Assessment Instrument.

This study created a learning assessment instrument for *ushul fiqh* to measure students' 21st century skills, including critical thinking, creative thinking, collaboration, and communication. The questions were designed with a contextual approach and are outlined in Table 2.

Tabel 2. A Contextualised Learning Design for *Ushul Fiqh* to Achieve 21st Century Skills

NO	Components of Contextual Learning	Indicators	Student Competencies	21st Century Skills Attainment Target
1	Constructivism	Knowledge is acquired through a process, and teachers facilitate opportunities for learners to acquire	(X1) Ushul Fiqh learning enables students to be able to interpret the understanding obtained to the experiences and problems in the community	critical thinking, creative thinking
2	Questioning	knowledge possessed through questioning	(X2) Ushul Fiqh learning allows students to develop the ability to understand and analyse the relationship between the material obtained and the	critical thinking, creative thinking, communication
3	Inquiry	the learning process is based on the search and discovery of knowledge through a systematic thinking process	(X3) Ushul Fiqh learning leads students to be able to identify and find independently the flow of legal determination used by scholars on fiqh cases in society.	critical thinking, creative thinking
4	Learning communities	learning outcomes through collaboration	(X4) Ushul Fiqh learning accustoms students to discuss and share among friends, religious leaders, and practitioners to share experiences and knowledge related to religious issues that occur in	critical thinking, creative thinking, collaborative
5	Modelling	demonstration of an example by a teacher or student	(X5) Ushul Fiqh learning accustoms students to observe, classify, interpret, predict and plan and communicate the results of research or observations that have been made.	creative thinking, collaborative, communication
6	Reflection	a way of thinking about what has been learnt	(X6) Ushul Fiqh learning directs students to reflect, identify moral messages and respond to the material that has been given and explain the relationship between the material that has been learned.	critical thinking
7	Authentic assessment	collection of various data describing student learning development	(X7) Assessment of learning processes and outcomes in Ushul Fiqh learning reflects the competence of knowledge, skills and attitudes.	critical thinking, creative thinking, collaboration, communication

Students are requested to provide their opinions in the form of agreement concerning the learning and evaluation processes of the *ushul fiqh* course. All these questions have referred to the design of learning outcomes and competencies in *ushul fiqh* validated by experts. All these questions have referred to the design of learning outcomes and competencies in *ushul fiqh* that have been validated by experts. The agreement score ranges between 1 to 5. The questions consist of items X1 to X7. All of these questions have referred to the design of learning outcomes and competencies in *ushul fiqh* that have been validated by experts. The responses provided by participants are used to develop an evaluation model, which is then validated using Structural Equation Modelling (SEM), Confirmatory Factor Analysis, and Goodness of Fit (GoF) (Maydeu-Olivares & García-Forero, 2009).

Validity Results Using Structural Equation Modelling (SEM) in Confirmatory Factor Analysis

The validity of the research is based on SEM criteria with a score loading factor (slf) ≥ 0.30 and T-Value ≥ 1.96 (Imam Ghazali & Fuad. SET, 2008). The design of the e-portfolio assessment instrument for critical thinking skills, creativity, collaboration, and communication in completing tasks individually and in groups in learning *ushul fiqh*. The following is a picture of the validity results with SEM:

Figure 1: The Score of Standardized Loading Factor

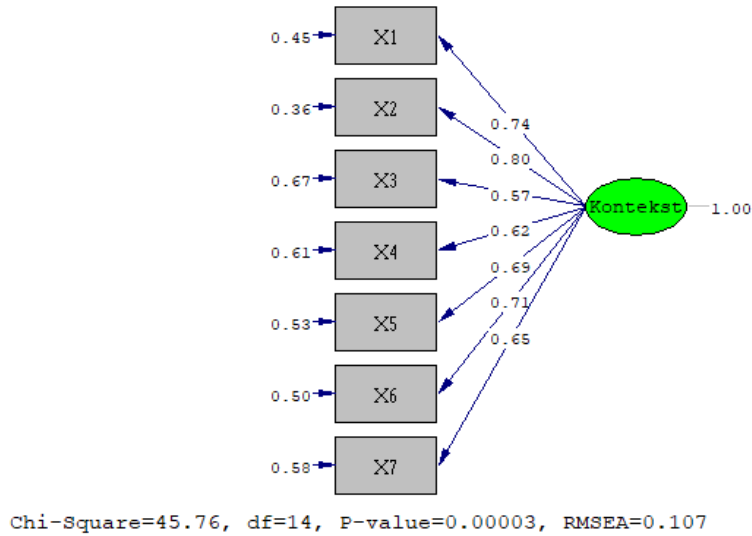
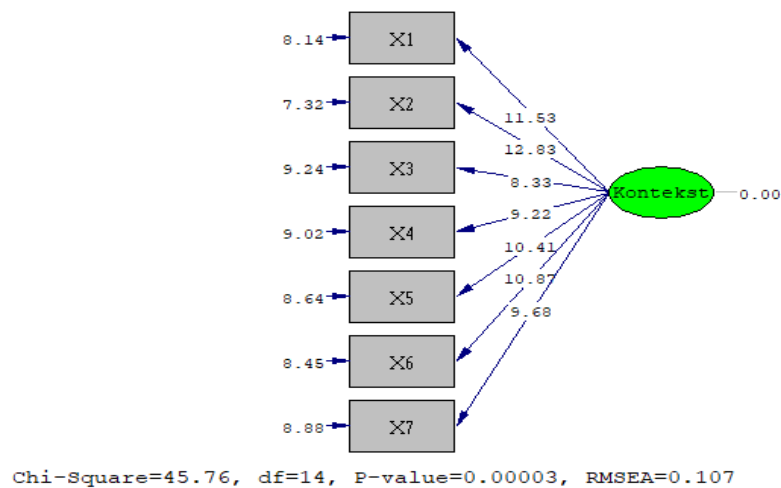


Figure 2 The Score of T-value



Figures 1 and 2 depicts that items X1-X7 are valid. The X1 loading factor score is 0.74 and the t-value is 11.53. The score of X2 loading factor is 0.80 and t-value is 12.83; that of X3 loading factor equals to 0.57, and t value is 8.33, the loading factor score of X4 equals to 0.62; and the t value is 9.22, the X5 loading factor score is 0.69, and t value is 10.41. X6 score loading factor 0.50 and t value 10.87. and X7 score 0.58 and t value 9.68. Table 2 below lists down the validity results:

Tabel 2. Validity Test Result

Components of Contextual Learning	Loading Factor Score	T-Value	Description
X1	0.74	11.53	Valid
X2	0.80	12.83	Valid
X3	0.57	8.33	Valid
X4	0.62	9.22	Valid
X5	0.69	10.41	Valid
X6	0.50	10.87	Valid
X7	0.58	9.68	Valid

Reliability Results Using Structural Equation Modelling (SEM) in Confirmatory factor analysis

The construct reliability value comes from the square of the total value (sum) of standard loading divided by the square of the total standard loading value plus the sum error value. The full formula is presented below:

$$\text{Construct Reliability} = \frac{(\sum \text{Std. Loading})^2}{(\sum \text{Std. Loading})^2 + \sum \varepsilon_j}$$

Construct Reliability, where the standard loading value comes from the standardized loading value for each indicator (AMOS output results, Lisrel). While the error (e) comes from the measurement error of each indicator: (1- Loading²). The cut off value for the construct reliability test is accepted if the value is > 0.70, but if the research is still explanatory the value below 0.7 is still acceptable. The results of the reliability of measuring instruments in this study are as follows:

No	(standardized loading) 2	Σej
1	0.74	0.45
2	0.80	0.36
3	0.57	0.67
4	0.62	0.61
5	0.69	0.53
6	0.50	0.50
7	0.58	0.58
Total	4.5 x 4.5= 20.25	3.70

$$\text{Construct Reliability} = \frac{(\sum \text{Std. Loading})^2}{(\sum \text{Std. Loading})^2 + \sum \varepsilon_j}$$

$$= 20.25 / 20.25 + 3.70 = 0.84$$

The cut off value for the construct reliability test is accepted if the value is > 0.70, The result of the reliability calculation is 0.84, so the measuring instrument developed in this study is reliable.

Goodness-of-Fit Test Result

The results of the fit test of the e-portfolio assessment instrument design shows that the model constructed is already fit. As a part of the valid instrument standard in SEM is termed testing the measurement model by checking the validity and reliability as well as the model fit test (Goodness of fit). The SEM output results of the model fit test of the e-portfolio assessment instrument on critical thinking, creative, collaborative and communication skills, as follow:

Table 3. Test of Model Fit /Goodness of FIT

Feasibility Measure	Value Criteria	Measure Result	Description
Chi Square	P value ≥ 0.05	0.00	Does not fulfil
RMSEA	≤ 0.08	0.11	Does not fulfil
ECVI	ECVI Model < ECVI Saturated dan Independen Model	ECVIModel = 0.37 ECVI Saturated= 0.28 ECVI Independen = 4.77	Enough to fulfil
AIC	AIC Model < AIC Saturated dan Independen Model	AICModel = 73.76 AIC Saturated= 56.00 AIC Independen = 950.00	Enough to fulfil
CAIC	CAIC Model < CAICSaturated dan Independen Model	CAIC Model = 133.94 CAIC Saturated= 176.35 CAIC Independen = 980.09	Enough to fulfil
NNFI	≥ 0.90	0.95	Meet
NFI	≥ 0.90	0.95	Meet
PNFI	≥ 0.90	0.63	Does not fulfil
CFI	≥ 0.90	0.96	Meet
IFI	≥ 0.90	0.97	Meet
RFI	≥ 0.90	0.93	Meet
GFI	≥ 0.90	0.94	Meet
RMR	≤ 0.08	0.023	Meet
AGFI	≥ 0.90	0.88	Enough to fulfil
PGFI	≥ 0.90	0.47	Does not fulfil
Critical N	< N (200)	126.48	Meet

Based on the goodness of fit test data, 8 criteria are fulfilled, 4 of which are enough even though 4 are not fulfilled. As more criteria are fulfilled, the model developed in this study can accurately measure the indicators (Agus Widarjono, 2015). Thus, the e-portfolio design test for assessing the 21st century skills in the *ushul fiqh* course is applicable, and it becomes a signpost in the assignment and learning process. Hence, lecturers can conduct continuous assessment towards the learning process and outcomes based on the collection of documents and the work of learners to see the development of learners' abilities (Muslihasari et al., 2019)

Learning, Assignment, and Assessment of *Ushul Fiqh*

To measure the achievement of critical thinking skills, creative thinking, collaboration and communication skills in *ushul fiqh* course, lecturers may refer to seven contextual learning that have been declared feasible by SEM validation and Goodness of Fit.

Tabel 4. Learning and Assessment Model of *Ushul Fiqh* for the 21st Century Skills

No	<i>Ushul Fiqh</i> Materials	Learning Model	Assignment	21st Century Skills
1	The sources of Islamic law	- Problem Based Learning	- Group discussion - Presentation	- Critical Thinking - Collaboration - Communication
2	The Methods of Ijtihad	- Problem Based Learning - Case Based Learning	- Case Research - Report Writing	- Critical Thinking - Creative Thinking - Collaboration - Communication
3	Linguistic rules in determining the law	- Problem Based Learning - Case Based Learning	- Problem Solving - Report Writing	- Critical Thinking - Creative Thinking - Collaboration - Communication
4	Maqasaid Syariah (The Main Objective of Islamic Law)	- Problem Based Learning - Case Based Learning	- Group discussion - Report Writing - Presentation	- Critical Thinking - Creative Thinking - Collaboration - Communication

DISCUSSION

The development of learning outcomes in the ushul fiqh course according to the demands of the 21st century can be empowered by measuring critical thinking skills, cooperation, and communication skills, according to the following statement about 21st Century Skills:

1. Critical Thinking

Learning through group discussion has improved students' critical thinking (Nurhilza, 2018). Critical thinking challenges the reliability of information, tests its accuracy, analyzes its validity, and draws reasonable justifications in certain situations (cited in Rohman & Kusaeri, 2021). Lecturers can utilise group discussions by challenging the issues of Islamic law (Maryani et al., 2018) that they face around them that each group must solve. Discussions further provoke critical thinking when lecturers challenge with different or counter answers, and ensure each individual expresses their views.

2. Creativity

Creativity refers to the ability to think outside the box, which involves new ways of thinking and generating creative ideas (Aini et al., 2020). Lecturers can use case-based learning to explore the material of the ijihad method in groups. This model will provoke students' creative power because they must apply the ijihad method by proposing various examples. Creative thinking is the capacity to generate new concepts or ideas for solving problems, even producing new ways as alternative solutions. The indicators of creative thinking are (a) fluency, (b) flexibility, (c) originality, and (d) elaboration (Agustini et al., 2020). It is the ability to create new ideas or works relatively different from the previous ones in solving problems.

3. Collaboration

Learning ushul fiqh with a contextual approach is conducive to honing students' collaboration skills with the project and case-based learning approaches. Assessment of collaboration with a contextual approach is not only done by lecturers but also by students themselves. Collaborative learning helps shape social skills (Laksmiwati et al., 2022). It involves students working in groups to solve problems, discuss, listen, and learn from each other to achieve a common goal. Some forms of collaborative learning include group projects, discussions, and debates. Collaborative learning can also improve critical thinking skills, social adaptation, academic achievement, attitude, and social skills (Pujiati & Dasar Marsudirini, 2023). The indicators of collaborative skills are contribution, time management, problem-solving, cooperation, and investigation technique (Aini et al., 2020).

4. Communication

Lecturer assessment and self-assessment must be optimized to ensure students communicate in every learning session. Lecturers provide feedback for misunderstandings, even correcting wrong wording. Communication skills can be monitored in group discussions and project report presentations because Communication is a critical skill that needs to be mastered by higher education graduates (Kiong et al., 2022). Therefore, in a global setting, students are trained to be able to communicate clearly and effectively, which includes delivering messages clearly and persuasively, speaking confidently, listening well, and mastering various communication technologies, such as social media and conferencing applications (Munir Yusuf, 2023).

The use of e-portfolios as an assessment of *fiqh* learning

Lecturers can use e-portfolios with any web-based platforms. At this stage, this research does not develop a specific application to create an e-portfolio. This study only designs *Ushul Fiqh* learning guidelines with a contextual approach to achieve 21st century skills. Lecturers will assess the overall portfolio submitted by students based on the seven components of contextual learning. The advantage of the portfolio approach is that it provides

opportunities for learners to be more involved, and students themselves can easily control the extent of the development of the abilities they have acquired. So, learners will be able to do self-assessment.

CONCLUSION

The study results suggested that the e-portfolio assessment instrument for *ushul fiqh* with a contextual approach (referring to seven components) effectively measure students' critical thinking, creativity, collaboration, and communication skills. It refers to the findings of validity measurements in SEM, which demonstrate that scores ≥ 0.30 and T-Value ≥ 1.96 are produced by the loading factor scores of all seven learning components. Furthermore, the instrument satisfies the Goodness of Fit criteria, most of which (eight criteria) are fulfilled; four of which are adequate and the other four not.

Factors that must be considered to produce valid and reliable lat measures are the selection of respondents or samples and the determination of the number of samples because it has an impact on the difficulty of producing valid and reliable items and it is difficult to get a model fit or goodness of fit

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