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Lecturer Competency Development Based on Continuous Professional Development using Borg & Gall and ADDIE Model

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Abstract
As educators and researchers, lecturers do not merely serve as conveyors of knowledge, but also as learning facilitators, innovators, and student mentors. Advances in science and technology, along with the increasingly dynamic demands of the workforce, require lecturers to continuously develop their competencies in a systematic and sustainable manner. The challenges faced in the era of globalization include rapid access to information and the digital technology revolution, as well as the need for graduates who are adaptable, creative, and competitive in the global market. Therefore, it is essential to continuously update their knowledge and academic competencies to keep pace with advancements in science and technology. Similarly, this applies to the curriculum, regulations, and standards of higher education; the need for faculty career development; and the strengthening of universities' roles in society as knowledge brokers. Professionally competent and continuously developing faculty members strengthen their capacity to solve problems and collaborate with stakeholders. The research question is: What are the competencies of faculty members in professional development that is sustainable? The research objective is to determine the competencies of faculty members based on professional development that is sustainable, with a 90% success rate based on the BKD report each semester. Research methods: the Borg & Gall model and the ADDIE model.

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INTRODUCTION

The development of faculty competencies is a key element in efforts to improve the quality of higher education. As educators and researchers, faculty members do not merely serve as conveyors of knowledge, but also as learning facilitators, innovators, and student mentors. Changing societal needs, advancements in science and technology, and the increasingly dynamic demands of the workforce require faculty members to continuously develop their competencies in a systematic and sustainable manner (Council of Australian Governments, 2012).

Educational challenges in the global era are characterized by rapid access to information and the digital technology revolution, which are impacting various aspects of life, including higher

education. Higher education institutions are required to produce graduates who are adaptable, creative, and competitive in the global market. Therefore, faculty members are required to continuously update their knowledge, pedagogical skills, and academic competencies to keep pace with advancements in science and technology (Tight, 2019). Curriculum changes that are increasingly oriented toward outcome-based education and active learning approaches, such as student-centered learning, require faculty members to possess strong pedagogical competencies. Faculty members must be able to plan, implement, and evaluate learning, as well as utilize educational technology effectively (Biggs & Tang, 2011). This necessitates well-planned and sustainable professional development programs. Regulations and national standards for higher education.

Policies outlined in the National Standards for Higher Education (SN-Dikti) mandate the improvement of faculty quality through training, certification, and professional development. The National Education System Law also emphasizes the importance of enhancing educators' competencies through continuing education programs (Law No. 20 of 2003). Continuous faculty development serves as a tool to achieve professional standards for competent and highly competitive faculty members; faculty career development needs not only improve the quality of teaching but also contribute to faculty career advancement. Continuing professional development (CPD) provides opportunities for faculty members to develop managerial competencies, academic leadership, as well as research and scientific publication capabilities. Thus, CPD plays a role in enhancing academic productivity and the competitiveness of faculty members on both national and international scales (Beijaard, Meijer, & Verloop, 2017).

By strengthening the role of higher education institutions in society as knowledge brokers, these institutions are expected to contribute to community development through innovation and community service. Professors who are professionally competent and committed to continuous professional development will reinforce the three pillars of higher education. CPD is a key strategy for strengthening faculty members' capacity to conduct applied research, address societal challenges, and collaborate with stakeholders (OECD, 2010).

Continuing professional development is defined as a systematic, planned, and ongoing lifelong learning process aimed at enhancing an individual's knowledge, skills, and professional competencies to remain relevant to the demands of their profession (International Labour Organization, 2015). The objective of this research and development is to develop a model, guidelines, or system for continuous professional development (CPD) for faculty members, and then to test its feasibility and effectiveness.

According to the Borg & Gall Model (2013), research and development involves designing, developing, testing, and evaluating, with general stages including a preliminary study (analysis of faculty needs and literature, initial design of the CPD model (continuing professional development), expert validation, limited pilot testing, revision, and evaluation of the effectiveness of the developed model. The research and development model (Rahayu,A.,, 2025) consists of 10 stages: research and data collection, planning, initial product development, preliminary testing, product revision, field testing, operational revision, operational field testing, final revision, and dissemination and implementation.

Journal of Education, Teaching, and Learning
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Continuous professional development using the ADDIE Model (Sari, M. N., et al., 2025). as follows: (1) Analysis in the development of lecturer competencies based on continuous professional development includes pedagogical, professional, social, and personal competencies; (2) Design (SMART) focuses on enhancing digital pedagogical skills, indexed scientific publications, and collaboration-based research competencies. The CPD program design includes workshops and periodic training, coaching & mentoring, Communities of Practice, and e-learning and microcredentials, culminating in the development of evaluation instruments: competency improvement rubrics, self-assessment tools, and key performance indicators (KPI). (3) Development of digital pedagogical modules, scientific article writing, cutting-edge research methods, and the integration of AI into learning, followed by expert validation by higher education experts, human resource management professionals, and professional development practitioners through validation techniques, expert judgment, readability testing, and content feasibility testing. (4) Implementation involves carrying out the pilot project, implementing the strategy, and documenting and monitoring the process; and (5) Evaluation consists of formative and summative evaluations. Thus, the application of the ADDIE model in CPD-based faculty competency development provides a systematic framework for designing, implementing, and evaluating professional development programs. This model ensures that lecturers' needs are accurately identified, the programs developed are relevant, and the outcomes of development can be objectively measured, thereby supporting the continuous improvement of higher education quality.

Based on the above discussion, the research question is: What are the actual conditions of lecturer development implementation, lecturer competency needs, model design, strategies, and effectiveness evaluation based on sustainable professional development using the Borg & Gall Model and the ADDIE Model? The objective is to understand and apply CPD-based lecturer competency development. Research Method: Descriptive Quantitative Research Method.

METHODS

The method used in this study is a qualitative and theoretical descriptive research method, where data processing is based on the results of secondary data documents, previous field observation documents (Sugiyono, 2021). Content analysis, discourse analysis and literature review. The activities are as shown in Figure 1 below, and the description is as follows:

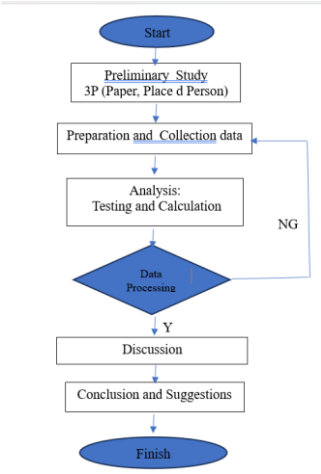


Fig. 1 Flow Chart Research

Journal of Education, Teaching, and Learning
Volume 10 Number 2 Year 2025. Page 421-431
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Based on quantitative and theoretical descriptive research methods, references can be obtained from primary data and secondary data collection (documents) for Krisnadwipayana University. preliminary study namely 3P (Paper, Place d Person), after that preparation and collection data (Jumlah responden 17, instrumen setiap variable ada 5 pertanyaan). Dan dilanjutkan dengan analysis dengan metode Model Borg & Gall dan Model ADDIE, and then data processing, conclusion and suggestions and finish.

RESULTS AND DISCUSSION

1. A study on the development of faculty competencies based on continuous professional development using the Borg & Gall model, addressing the current state of faculty development, faculty competency needs, model design, strategies, and evaluation of the effectiveness of continuous professional development at the Faculty of Engineering, UNKRIS , as follows:

The discussion of the Borg & Gall model for the actual conditions of faculty development is a research and development approach in educational research that consists of 10 stages: data collection, planning, initial product development, preliminary testing, product revision, field testing, operational revision, operational field testing, final revision, dissemination, and implementation. However, in this study, the process was simplified into 5 stages: preliminary research, development, validation, pilot testing, and final product for research in the field of the Tri Dharma of Higher Education at the Faculty of Engineering. As shown in Table 1 below. The research results indicate that 90% have achieved certification, while the remaining 10% have not yet obtained UNKRIS lecturer certification. Similarly, in Table 2, performance activities (teaching and learning processes, research, and community service) utilize the Borg & Gall model. The Borg & Gall model consists of only these five stages: preliminary research, development, product validation, and pilot testing. This model is used to produce a concrete final product with a 90% success rate.

Table 1.
The Reality of Lecturer's Conditions, the Borg & Gall Model with 5 Stages, Faculty of Engineering, UNKRIS
(Source:Monitoring and Evaluation Report, Even Semester, 2023/2024 Academic Year)

Field	Preliminary Research	Development	Validation	Trial	Final Product	description
Components of educational activities (teaching, academic advising for community service programs, theses, master's theses, and dissertations)	90%	90%	90%	90%	90%	90%
Elements of research implementation	90%	90%	90%	90%	90%	90%

Elements of community service implementation	90%	90%	90%	90%	90%	90%
Supporting elements for the implementation of the three pillars of higher education.	90%	90%	90%	90%	90%	90%
Special duties of lecturers and professors	90%	90%	90%	90%	90%	90%

Table 2
The Reality of Lecturer's performance Conditions, the Borg & Gall Model with 5 Stages, Faculty of Engineering, UNKRIS
(Source:Monitoring and Evaluation Report, Even Semester, 2023/2024 Academic Year)

Field	Preliminary Research	Development	Validation	Trial	Final Product	Desription
Educational activities (teaching, academic advising, supervising community service programs, theses, master's theses, and dissertations)	90 %	90 %	90 %	90 %	90 %	90 %
Research implementation components (as required)	90 %	90 %	90 %	90 %	90 %	90 %
Elements of community service implementation	90 %	90 %	90 %	90 %	90 %	90 %

Similarly, this discussion covers the Borg & Gall model for analyzing faculty needs, model design, implementation strategies, and evaluating the effectiveness of continuous professional development in the three pillars of higher education: the educational component (teaching, supervising fieldwork, theses, master's theses, and dissertations); the research component, the community service component, and the specific obligations of lecturers and professors. This involves a five-stage process beginning with initial research, development, validation, and the final product—resulting in a 90% success rate as evidenced by the faculty workload reports each semester, with the remaining 10% consisting of faculty members who have not yet received certification.

In the implementation strategy, from Phase 1 to Phase 2, the process begins with needs analysis and planning. strategy, initial product development, initial testing, revisions, and the final product namely the implementation strategy through to the finalization and dissemination of interview results. Activities based on interview results, identification of professional standards with specific learning outcomes and objectives (SMART), resulting in a framework for the continuous development of faculty members, yielding highly satisfactory results. Next, Phase 3 involves the development of an initial product by designing modules, resulting in a CPD program prototype. Then, Phases 4 through 5 involve a small-scale pilot project strategy and the use of evaluation instruments, leading to program design improvements in Phases 6 through 8. Subsequently, the implementation strategy targets a larger population, integration with organizational systems, and continuous monitoring. With the program's effectiveness confirmed, the final stages (9 through 10) involve finalization and dissemination, leading to strategies for program refinement, publication, and integration into institutional policies. Consequently, 90% of the results were highly satisfactory.

The evaluation stage of the effectiveness of continuous professional development using the Borg & Gall Model combined with modern training evaluation aims to foster learning satisfaction, such as increased knowledge and skills, leading to behavioral changes in work practices. The impact on performance includes increased productivity and improved service quality. The advantages of this model include its systematic and research-based approach, its iterative nature (involving continuous revisions), and its high validity due to field testing.

According to (Sari, M. N., et al., 2025), ADDIE-based Human Resource (HR) competency development is a learning and training design model consisting of five main stages, namely: (1) Analysis, which involves identifying competency needs, skill gaps, participant characteristics, and the objectives of human resource development. At this stage, an analysis of both organizational and individual problems and needs is conducted; (2) Design**,** which involves formulating learning objectives, materials, methods, strategies, media, and evaluation instruments to be used, resulting in a systematic training program design; (3) Development**,** which involves creating instructional materials, modules, training media, case studies, and other supporting resources according to the established design. At this stage, the training product begins to be developed and realized; (4) Implementation, which involves delivering the training program or competency development activities to participants. This stage includes the presentation of materials, the use of media, and the management of the learning process; and (5**)** Evaluation, which involves assessing the effectiveness of the training program through both formative evaluation during the process and summative evaluation after completion. The evaluation results are then used to improve the program in subsequent cycles.Therefore, this theory aims to develop human resource (HR) competencies. The ADDIE model is utilized because it provides a systematic framework for designing, implementing, and evaluating training programs, enabling employee competencies to be enhanced in a measurable manner and aligned with organizational needs.

B. Current conditions of faculty development, faculty competency needs, model design, strategies, and evaluation of the effectiveness of continuous professional development using the ADDIE Model (Analysis, Design, Development, Implementation, Evaluation)

Base on (Benny Agus Pribadi, 2020) discussion of the ADDIE Model for the actual implementation of faculty development at the Faculty of Engineering using the ADDIE model (Analysis, Design, Development, Implementation, Evaluation) was conducted in the following areas: educational implementation (teaching, academic advising, supervising community service programs, theses, master's theses, and dissertations); research implementation; community service implementation; and the implementation of elements supporting the three pillars of higher education and the specific duties of lecturers and professors, as shown in the table, yielded excellent results

Journal of Education, Teaching, and Learning
Volume 10 Number 2 Year 2025. Page 421-431
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with a score of 90%, representing the percentage of lecturers who have fulfilled their workload requirements each semester, while 10% have not yet fulfilled these requirements or participated in lecturer certification, as shown in Table 3. Similarly, in Table 4, the performance-based pay activity reports for faculty members cover three areas: the educational implementation component (Teaching, supervising Community Service Programs or KKN, theses, master's theses, and dissertations, and textbooks); the research implementation component (as per requirements); and the community service implementation component, yielding 90% compliance and 10% who have not yet participated in faculty certification.

Table 3.
The Reality of Lecturer's Conditions, ADDIE Model at the Faculty of Engineering, UNKRIS (Source:Monitoring and Evaluation Report, Even Semester, 2023/2024 Academic Year)

Field	Analysis	Design	Development	Implementation	Evaluation	Description
Components of educational activities (teaching, academic advising for community service programs, theses, master's theses, and dissertations)	90 %	90 %	90 %	90 %	90 %	90 %
Elements of research implementation	90 %	90 %	90 %	90 %	90 %	90 %
Elements of community service implementation	90 %	90 %	90 %	90 %	90 %	90 %
Supporting elements for the implementation of the three pillars of higher education.	90 %	90 %	90 %	90 %	90 %	90 %
Special duties of lecturers and professors	90 %	90 %	90 %	90 %	90 %	90 %

Table 4
The Reality of Lecturer's performance Conditions, ADDIE Model at the Faculty of Engineering, UNKRIS
(Source:Monitoring and Evaluation Report, Even Semester, 2023/2024 Academic Year)

Field	Preliminary Research	Development	Validation	Trial	Final Product	Desription

Educational activities (teaching, academic advising, supervising community service programs, theses, master's theses, and dissertations)	90 %	90 %	90 %	90 %	90 %	90 %
Research implementation components (as required)	90 %	90 %	90 %	90 %	90 %	90 %
Elements of community service implementation	90 %	90 %	90 %	90 %	90 %	90 %

Similarly, the application of the ADDIE Model (Analysis, Design, Development, Implementation, Evaluation) to address faculty competency needs at the UNKRIS Faculty of Engineering, based on the activities outlined in Table 3, yielded highly satisfactory results of 90% across the analysis, design, development, implementation, and evaluation phases of faculty activities. The assessment criteria included: pedagogical competencies or instructional design (RPS, CPL, and CPMK), student-centered learning, and authentic assessment; professional competencies, mastery of the field of study, and the integration of research into learning; digital competencies, e-learning, LMS, AI in learning, and hybrid learning; social and personal competencies, effective communication, and academic collaboration; and competencies in critical thinking, creativity, innovation, and problem-solving. Thus, these needs have been identified through student surveys, faculty self-assessments, and competency gap analyses.

Discussion of the ADDIE Model (Analysis, Design, Development, Implementation, Evaluation) for designing models at the UNKRIS Faculty of Engineering to analyze the components of educational activities (teaching, academic advising, supervising Community Service Programs, theses, master's theses, and dissertations; elements of research implementation; elements of community service implementation; and elements supporting the three pillars of higher education and the specific duties of lecturers and professors, such as identifying faculty development needs, conducting analyses of faculty competency gaps, analyzing student and curriculum needs, and analyzing the institutional context. The outcomes achieved include a map of faculty competency needs and training priorities; Design, such as the objectives of designing a continuous professional development program, learning activities, developing a training curriculum, and determining workshop methods; the outcomes achieved are a blueprint for the continuous professional development program, including the development of materials and tools for continuous professional development, activities such as designing training modules, creating media (LMS, videos, digital modules), and expert validation. The outcome achieved is that the continuous professional development modules are ready for use; for implementation with the aim of carrying out continuous professional development programs, training activities (workshops/seminars), mentoring/coaching,

and teaching practice; It is important to note that faculty members must be actively involved, including in the initial needs analysis and the final evaluation, with the aim of assessing the effectiveness of continuing professional development. The resulting model design achieved an excellent 90% success rate.

Discussion of the ADDIE Model (Analysis, Design, Development, Implementation, Evaluation) for faculty implementation strategies at the UNKRIS Faculty of Engineering regarding the analysis of educational implementation components (teaching, academic advising, supervising Community Service Programs, theses, master's theses, and dissertations; research implementation elements; community service implementation elements; and elements supporting the three pillars of higher education and the specific duties of lecturers and professors are based on the needs of the university using sustainable programs, such as workshops, coaching, practice-based communities of practice, lesson study and peer teaching, and technology-based collaborative learning communities for lecturers.

Discussion of the ADDIE Model (Analysis, Design, Development, Implementation, Evaluation) for evaluating the effectiveness of continuing professional development at the UNKRIS Faculty of Engineering, focusing on analyzing the components of educational implementation (teaching, academic advising, supervising Community Service Programs, theses, master's theses, and dissertations; elements of research implementation; elements of community service implementation; and elements supporting the three pillars of higher education and the specific duties of lecturers and professors. The recommended model which includes components such as reaction, learning, behavior, results, and concrete indicators can enhance the quality of course syllabi, foster learning innovations, improve student learning outcomes, and increase faculty scientific publications. Thus, the ADDIE-based continuous professional development model produces a systematic model characterized by being needs-based, sustainable, and adaptive to change. The ADDIE model is highly relevant for lecturers' continuous professional development because it provides a systematic framework, ensures a needs-based program, and enables continuous evaluation.

CONCLUSIONS

Conclusions

Based on the results of the analysis and discussion, the following conclusions as shown below:

1. Based on the findings of the study employing the Borg & Gall Model and the ADDIE Model at the Faculty of Engineering, UNKRIS, the current status of lecturer development implementation, lecturer competency needs, model design, implementation strategies, and effectiveness evaluation within the Tri Dharma of Higher Education demonstrates a very good level of performance. This is evidenced by the semester-based lecturer workload reports, which indicate that approximately 90% of lecturers have successfully fulfilled their academic workload obligations, while the remaining 10% have not yet fully implemented the Lecturer Workload (BKD) activities.
2. Similarly, the application of the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation) to enhance lecturer competencies in model design, implementation strategies, and the evaluation of the effectiveness of continuous professional development within the framework of the Tri Dharma of Higher Education achieved highly satisfactory results, categorized as very good. This is reflected in the semester-based Lecturer Workload reports. The model ensures that lecturers' needs are accurately identified,

development programs are designed to be relevant and responsive, and the outcomes of professional development initiatives can be measured objectively. Consequently, the model contributes to the continuous improvement of higher education quality and supports sustainable academic development.

Recommendation

1. For higher education institutions, this involves integrating the continuous professional development of faculty members as a strategic institutional program, providing policy support, funding, and infrastructure, and developing a continuous evaluation system.
2. Faculty members should foster a culture of lifelong learning, be active in the academic community and engage in professional reflection, and develop individual development plans.
3. Limitations include the time-consuming nature of the process, relatively high costs, and the complexity of implementing sustainable faculty professional development.

CONFLICTS OF INTEREST STATEMENT

The author declares that there is no conflict of interest regarding the publication of this paper.

AUTHOR CONTRIBUTIONS

The first author was responsible for the research design, data collection, data analysis, and manuscript writing. The co-author provided academic supervision, conceptual guidance, and critical revisions to improve the quality of the manuscript.

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