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RESEARCH ARTICLE

INTEGRATING THEORY AND PRACTICE IN CREATIVE DISCIPLINES: A LONGITUDINAL STUDY OF (RE-)ADAPTIVE LEARNING MODELS AND COMPETENCE DEVELOPMENT WITHIN A COMMUNITY OF PRACTICE

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Abstract

This study scrutinises the prevailing paradigm of disseminating knowledge through conventional instructional methodologies such as lecturing, which often fail to cultivate the comprehensive skill sets requisite in contemporary professional environments. It addresses the disconnect between traditional teaching practices and learner expectations by proposing innovative instructional design frameworks. This research contributes to filling extant gaps in the literature regarding the dynamics of competence development across university curricula, where previous studies, overly reliant on self-assessments, have not adequately captured these dynamics. Employing a longitudinal, mixed-methods approach and multiple forms of triangulation, this study comprehensively examines the processes of constructing, modifying, and enhancing professional knowledge, skills, and attitudes. It embraces technological integration, individualization, the transfer of theory into practice, re-adaptive teaching, and adaptive course methodologies. The significance of the findings is profound, offering critical insights into enhancing professional competence across diverse academic disciplines.

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Introduction:

In the domains of communicative media, creative business, and design-oriented educational frameworks, the interconnection between academic institutions and professional practices emerges as a critical element for an education that is anticipatory and aligned with future demands. The construct of a professional's modality of activity—particularly in selecting effective strategies for communication and positioning—is encapsulated in the notion of 'appropriation formation' (Hepp, 2019). This process is inherently collaborative, woven into discursive frameworks, and unfolds within the context of university blended learning environments. These settings are characterised by didactic and sociological mediation, entailing a complex interplay of intertextual dimensions embedded within culturally socialised practices. The imperative to cultivate professional competence is palpable, as the knowledge

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traditionally disseminated via lectures often proves inadequate for fostering the requisite holistic competencies. This deficiency underscores the urgency of adopting innovative, student-centric pedagogical methodologies that are focused on competence development and predicated on the principle of active learner engagement.

Diverse theoretical paradigms within the field of international studies underscore an imperative for augmented inquiry into the development of professional competence across various university curricula (Moro et al., 2019; Vindigni, 2023e). This necessity is pressing and warrants immediate scholarly attention. Additionally, empirical evidence suggests that childcare educators possessing a bachelor's degree exhibit enhanced expertise, although Whitebook (2003) was unable to confirm an increment in expertise attributable to variations in pedagogical approaches and practical placements within early childhood education degree programs. To bridge these identified lacunae, further research, employing longitudinal mixed-methods investigations is essential to elucidating the evolution of professional knowledge, competencies, and dispositions throughout educational programmes (Scharenberg et al., 2021; Vindigni, 2020; Vindigni, 2021a; Vindigni 2021b; Vindigni, 2023e; Vindigni, 2023a). Concurrently, Sztajin and Wilson (2019) have demonstrated that integrating self-assessments with more external and objective evaluations at different stages of professional training can yield a richer, more nuanced understanding of competence development.

Ongoing research into nascent instructional paradigms remains critical, particularly those focusing on adaptive and TP-TA models (Turel, 2021). The integration of technology with experiential learning methodologies is posited to synchronise the skills acquisition process with the contextual demands of design, media, and communication disciplines (De Pablos Patricia et al., 2020; Vindigni, 2023f; Vindigni, 2023g). Future investigations should aim to execute comparative analyses that evaluate the 'competence advancement' achieved through traditional pedagogical methods—predominantly lectures—against that realised through innovative, adaptive teaching strategies. These strategies are poised to catalyse the evolution of progressive educational methodologies and inform targeted instructional enhancements (Augstein et al., 2023). Additionally, the horizontal expansion of such comparative research through the application of multidimensional research methodologies could facilitate reformative processes designed to amplify professional competence across diverse academic domains. Integrating theoretical insights with practical applications within specific fields can provide the necessary momentum to address the burgeoning demand for a professionally adept workforce in the media and creative industries.

This research uniquely concentrates on a 180-day practical phase within a Community of Practice (CoP), aiming to critically evaluate the integration and enactment of theoretical concepts (Vindigni, 2023a; Vindigni, 2023d; Vindigni, 2023e; Vindigni, 2021a; Vindigni, 2021b; Vindigni, 2020). The primary objectives of this study are structured as follows:

This research, distinctively focused on a 180-day practical phase within a Community of Practice (CoP), is dedicated to the critical evaluation of the integration and enactment of theoretical concepts. The study delineates several primary objectives aimed at understanding the intersection of theory and practice within this unique educational context:

Evaluate the Impact of the Theory-Practice-Interlocked Model:

This objective seeks to determine the efficacy of an integrated study model that incorporates re-adaptive and adaptive learning scenarios in achieving pedagogical objectives. The focus is on whether this model effectively facilitates the acquisition of essential professional skills among students, thus enhancing their professional preparedness.

Analyse Theoretical Application in Practical Settings:

This component of the research will assess the capacity of students to translate their theoretical education into practical applications. It will critically examine the depth and robustness of competencies developed during the practical phase, focusing on the intensity and durability of these competencies as they are applied in real-world scenarios.

Synthesise Findings to Refine Educational Practices:

The study will utilise the data collected to propose refinements and innovations in educational practices. By analysing the outcomes and effectiveness of the theory-practice interlocked model, the research aims to contribute valuable insights that could influence future curriculum designs and instructional approaches within CoPs.

Contribute to Scholarly Discourse on Professional Learning Environments:

Through rigorous analysis and evaluation, this research intends to add to the academic dialogue concerning integrated learning environments, offering empirical evidence and theoretical interpretations that may benefit broader educational policy and practice with regard to SDG-4.

The secondary objectives of this study are delineated to further elaborate on the nuances of educational processes within a Community of Practice (CoP), focusing on the integration of experiential and theoretical learning components:

1. **Illuminate the Efficacy of Experiential Learning:** This objective aims to underscore the significance of experiential learning within the CoP framework, particularly its role in enhancing the nexus between theoretical comprehension and practical application in real-world scenarios.
2. **Examine the Impact of Intensive Practical Experience:** Through a methodical investigation of a rigorous 180-day practical phase, this objective seeks to determine how such immersive experiences influence students' abilities to apply theoretical concepts effectively in practical situations.
3. **Evaluate the Role of Reflective Assessments:** This goal focuses on assessing the impact of self-evaluations by students and feedback from supervisors on the success of learning outcomes and practical application. The study will analyse how these reflective assessments contribute to educational achievements within the CoP.
4. **Verify the Effectiveness of Feedback Mechanisms:** Dedicated to confirming the utility of feedback mechanisms in evaluating the success of the interconnection between theory and practice, this objective will investigate the mechanisms' role in enhancing both educational and practical outcomes.

Each of these objectives contributes to a comprehensive understanding of the dynamics between educational theory and professional practice, aiming to enhance pedagogical strategies and learning efficacy within the CoP environment (Vindigni, 2023c).

By implementing a design-oriented triangulation methodology as the foundation of this investigation, the research is equipped to thoroughly examine the nuances of integrating theoretical knowledge with practical application during the 180-day practical phase within a Community of Practice (CoP). This methodological approach is not only theoretically robust but also pragmatically significant, facilitating real-world applications in educational settings and professional development initiatives (Vindigni, 2023a; Vindigni, 2023d; Vindigni, 2023e; Vindigni, 2023g; Vindigni, 2020).

Given the sensitivity surrounding feedback on research outcomes, particularly in contexts where intellectual property rights, ethical considerations, or privacy concerns related to patient information are prevalent, a meticulously crafted research design is imperative. This design integrates both qualitative and quantitative methodologies to navigate the complexities presented by variability in course structures, study formats, and the diverse perspectives of participants. Such an approach ensures that the investigation adheres to the highest standards of research integrity while addressing the specific challenges and constraints inherent in educational research.

Triangulation serves as a pivotal methodological approach in this study, ensuring the consistency of findings derived from diverse data collection methods employed among students and practical supervisors. This technique amplifies the validity of the results, aligning with Baker and Egbert's (2016) and Flick's (2018) criteria for high-quality research, thereby providing reliable evidence to address the research questions posed.

The research methodology encompasses a comprehensive search strategy adhering to PRISMA guidelines, which is meticulously executed across three primary educational databases: ERIC, Education Source, and PsychINFO. This systematic approach was employed to harvest data pertinent to adaptive learning, higher education, theory-practice transfer, and professional competence. The search, conducted using electronic databases in July 2023, focused on empirical, peer-reviewed articles published between 2000 and 2022.

This rigorous process resulted in the initial screening of 342 records, leading to the selection of 25 papers of significant relevance and high quality. The selected articles were further supplemented by manual cross-checking of references within key papers, ensuring a thorough and expansive review of the literature relevant to the study's focus areas.

This approach acknowledges the limitations inherent in traditional lecture-based methods for fostering integrated competencies, emphasising instead the adoption of innovative pedagogical strategies to enhance learning and teaching

outcomes among students. Comparative research examining curricular frameworks in various countries highlights a significant deficit in practices and specific methodologies that are essential for building professional competence within targeted curricula. To address these deficiencies, this study advocates the implementation of both simultaneous and sequential mixed-methods designs. These designs integrate self-assessment and external competency evaluations, thereby enriching the empirical basis for understanding effective educational practices. Moreover, the introduction of new instructional paradigms, specifically adaptive and re-adaptive learning models, is proposed as a means to bridge these identified gaps. Such methodological and pedagogical innovations are positioned to substantially improve the alignment of educational practices with the demands of professional competence development.

The empirical component of this study employs a mixed-methods approach, integrating both quantitative and qualitative data collection techniques. Quantitatively, a structured questionnaire survey was administered to gather data from students within the Department of Design and Media, encompassing disciplines such as Media Business, Digital Games Business, and UX-Design. Of the 533 students approached, 208 responded, yielding a response rate of 39%. The questionnaire, previously validated with a pilot test involving 265 students, explores four critical dimensions: the educational curriculum and its approach, competency acquisition, the translation of theoretical knowledge into practical application, and student satisfaction.

Qualitatively, the research incorporates semi-standardised, problem-centred expert interviews with key stakeholders in education and professional training. These interviews, guided by a partially standardised methodology, aim to assess the effectiveness of the 180-day practical phase. The use of record-based, guideline-oriented interview techniques ensures a rigorous, systematic inquiry into the experiential learning outcomes and the practical integration of academic teachings.

The quantitative component of the study's data analysis utilised a sophisticated array of assessment tools, including compound Likert-type scales as well as multiple and single-choice questions. To ensure the reliability of the instruments, internal consistency was measured using Cronbach's alpha, with a threshold set at a minimum of $\alpha = .65$. In compliance with anonymity requirements and institutional policies, data collection protocols strictly adhered to these guidelines.

Subsequently, the data was analysed utilising advanced statistical software, specifically IBM SPSS Version 29 and MaxQDA. A multivariate analysis of variance (MANOVA) was employed to assess the effects of scaled independent variables on the dependent variables under study. The quantitative evaluation process also incorporated reliability testing, correlation analyses, and descriptive statistics, which collectively facilitated a robust qualitative interpretation of the inductive statistical outcomes. This comprehensive approach was pivotal in examining competence acquisition during the practical phase, adhering to the constraints imposed by a Non-Disclosure Agreement (NDA).

The application of method-oriented triangulation significantly augmented the robustness of the research methodology. This multifaceted approach, which incorporated digital questionnaires alongside semi-structured interviews, proved instrumental in the meticulous examination of experiential knowledge acquisition and theoretical application. By employing this innovative methodology, the research not only enhanced the data's quality, cost-effectiveness, and reliability but also facilitated the rapid collection of diverse data sets. Consequently, data were gathered from over 500 participants, furnishing a comprehensive perspective that supports potential future optimisations in the field. This triangulation method, therefore, not only broadened the empirical base of the study but also enriched the interpretative depth, offering nuanced insights into the dynamics of knowledge and skill acquisition in professional contexts.

In addressing the ethical dimensions of the study, the practical phases dedicated to examining competency acquisition meticulously adhered to the ethical standards outlined by TRREE (2023). Rigorous measures were implemented to ensure the protection of participants' identities and privacy, with informed consent comprehensively secured from all participants. Although challenges related to data protection laws and non-disclosure agreements (NDAs) inevitably arise, the study managed these concerns prudently, albeit without providing full disclosure.

The research methodology employed, which integrated both interviews and digital questionnaires, facilitated method triangulation. This not only upheld ethical standards but also enriched the data quality and augmented the overall integrity of the study. This approach was meticulously designed to maintain impartiality, accuracy, credibility, and relevance throughout the research process. It ensured that participants' rights and self-esteem were not compromised, nor were they exposed to any risks from the commencement to the conclusion of their participation. Such a

commitment to ethical rigour fosters confidence among readers and stakeholders regarding the study's integrity and its adherence to high ethical standards.

This investigation primarily engages with descriptive assessments and evaluations, noting a significant lacuna in the seamless integration of theoretical frameworks with practice-based applications. Addressing these deficiencies necessitates enhanced interdisciplinary communication and the adoption of integrative methodological approaches that are reflexive of the complex issues faced by contemporary societies. The research highlights that while methodological strategies commonly employed in educational sciences—particularly those involving triangulation—can introduce methodological dilemmas, these can be mitigated by adopting convergent, design-oriented methods. Furthermore, the study underscores the critical importance of adhering strictly to empirical research guidelines and protocols to ensure methodological integrity.

To navigate the complexities associated with translating and applying empirical hypotheses across various educational disciplines, a proactive, design-oriented triangulation approach is employed. This strategy not only facilitates the rigorous testing of hypotheses but also enhances the interpretative validity of cross-disciplinary educational research. By employing this approach, the study aims to bridge the theoretical and practical divides, thereby enriching the empirical landscape and contributing to a more holistic understanding of educational phenomena.

This study aims to substantially enhance our understanding of learner behaviour within the context of blended and online degree programmes, particularly within the media and creative industries. By implementing a design-oriented triangulation approach, the research critically evaluates the degree of learner-centeredness and the flexibility of didactic strategies, specifically in the application of taxonomic learning outcomes to theory-practice dynamics. This evaluation focuses on determining whether these educational objectives predominantly foster skills based on memorization or if they extend to higher-order cognitive processes such as application and analysis.

Consequently, an in-depth analysis of student competency gains in relation to the specified taxonomies will provide vital insights into the effective management of educational processes. This assessment not only aims to enhance pedagogical strategies but also strives to promote and establish transformative learning processes. These processes are designed to equip learners with the skills necessary to address significant tasks and challenges, anticipating future demands that extend beyond traditional classroom settings into broader educational and practical applications. Thus, the study contributes to a holistic approach to learning, ultimately serving educational institutions and their practical applications by preparing students more effectively for the demands of the professional world.

This Research by Vindigni (2023e; 2020) conforms to the established guidelines recommended for social and behavioural sciences and is structured into several pivotal chapters. Chapter 1 presents a comprehensive introduction to the research, delineating the motivation for the study and articulating the overarching research questions. Chapter 2 engages in a deductive analysis of learning goal taxonomies, enriched with insights and precedents from existing literature and empirical studies. Additionally, the dissertation incorporates a robust framework of methodological triangulation and addresses ethical considerations, which are detailed extensively in an annex.

Chapter 3 is dedicated to the execution of empirical research, encompassing both survey methodologies and expert interviews. This chapter employs evaluative and action research techniques to rigorously assess and interpret the data. Chapter 4, aiming to bridge theoretical insights with practical applications within management sciences, synthesises the research findings, discusses the inherent limitations of the study, and offers targeted recommendations. This final chapter contributes significantly to the applied sciences, providing actionable solutions and forwarding the field's understanding of practical implications in real-world settings.

Materials and Methods:

The examination of professional competence among entry-level employees investigates the variance in competencies as influenced by educational trajectories. This multifaceted inquiry, as discussed in university educational frameworks, posits that professional competence is not solely a product of subject-specific knowledge and general competencies but is significantly shaped by practical experiences (Whitebook, 2003; Wess et al., 2021). The study explores how different learning environments—face-to-face versus online—affect the development of these competencies. Notably, while vocational training for nurses via online platforms yields comparable care competency scores to traditional face-to-face instruction, deficits are observed in competencies that require physical interaction, such as touch

communication (Shaw-Battista et al., 2015; Fam et al., 2016). Furthermore, Olson and Werhan (2005) identify minimal differences in the knowledge imparted to pre-service and in-service teachers across various modes of delivery, highlighting the critical need for adaptive learning designs that effectively bridge theory and practice.

The research delineates a significant enhancement in intercultural competence and adaptation capabilities through international teaching practices as compared to domestic methodologies (Zhou et al., 2016; Vindigni, 2023f; Vindigni, 2023g; Vindigni, 2021a; Vindigni, 2021b). Despite these findings, Bennett (2018) identifies inherent limitations within the study, particularly the challenges associated with isolating the effects of international educational experiences from other curricular elements. Further complicating the evaluation of competence development is the reliance on self-measurement techniques, which are susceptible to inherent subjectivity.

To address these methodological constraints, the research advocates for an integrative mixed-methods approach, combining objective tests and behavioural observations with self-evaluations to construct a more comprehensive assessment framework (Choptiany et al., 2019; Nikou & Economides, 2017). Moreover, the study elucidates the distinctions between adaptive and re-adaptive learning systems. Specifically, it discusses how adaptive learning platforms tailor content based on the data of one or multiple learners, thereby not only addressing knowledge gaps but also fostering the development of reflective skills (Liu et al., 2020).

Re-adaptive models synthesise adaptive technologies with direct face-to-face communication, crafting a learning paradigm that robustly supports constructivist theories (Zhong et al., 2020). From a theoretical standpoint, adaptive learning methodologies are rooted in the principles of constructivism and social constructivism, reflecting the processes essential for the development of real-life competencies (Saba & Shearer, 2017). Given the dynamic essence of adaptive learning environments, the assessment of professional competence, particularly for educators and trainers, necessitates a sophisticated blend of quantitative and qualitative approaches. These assessments integrate performance-related indicators with self-reflective practices and questionnaires, targeting the cognitive, psychomotor, and affective domains of learning (Frezza et al., 2018).

Furthermore, the integration of STEM into media and creative disciplines, though infrequent, has proven effective. It facilitates unique learning experiences that significantly enhance digital competencies (Yilmaz, 2017). Collectively, these observations underscore the imperative for more nuanced research into how adaptive learning methodologies can be optimised to bolster professional competence across diverse educational settings. Such investigations should align methodological research approaches with the contemporary paradigms of defined competencies, ensuring that educational strategies are both effective and relevant in today's rapidly evolving professional landscapes.

Method Triangulation Analysis (MTA) represents a comprehensive approach in qualitative research dedicated to assessing the reliability and validity of findings by integrating multiple data sources and methodologies. This approach facilitates a robust convergence of evidence, enhancing the credibility of the research outcomes. In this study, data were gathered through surveys and further analysed using exploratory factor analysis to investigate various dimensions such as competencies, professional identity development, and the alignment of theory with practice within media and creative industry educational programmes.

The exploratory factor analysis was executed using IBM SPSS (2023), which facilitated the structuring of data into coherent scales. This process involved aggregating correlated items to form seven distinct competency scales and a separate scale for theory-practice transfer. To ascertain the validity of these scales, internal consistency was evaluated using Cronbach's alpha reliability coefficients, which ranged from 0.803 to 0.933. These values indicate a high level of internal consistency among the items within each scale, thereby confirming the methodological soundness and reliability of the analytical framework employed in this research.

The factor analyses conducted within the scope of this study enabled the identification of distinct scales pertinent to the measurement of competencies within the educational context. These scales encompass professional appropriation formation, appropriation-formative expansion of methodological competence, appropriation formation related to presentation skills, appropriation-formative communication competence, collaborative competence within the community of practice, appropriation-formative reflection competence, appropriation-formative professional identity, and theory-practice transfer. These categorizations facilitate nuanced data comparisons based on participants' self-reported evaluations of competency development and theoretical application.

Further analytical procedures included descriptive analyses and chi-square tests, which were employed to assess the impact of variables such as the course of study, study format, previous professional experiences, and motivational factors on the measured competencies. The demographic composition of students in higher education institutions revealed a balanced gender representation, a majority having partners, and variations in parenthood status, which were contingent upon their specific programmes of study.

Results:

Document analysis of the field reports:

Document analysis of the field reports from XY University (NDA) students was conducted using qualitative content analysis to scrutinise 42 practice reports, with a focus on reflective and professional qualities. The analysis, aimed at probing key learning objectives, sought to elucidate the extent of theory-practice transfer and the development of reflective competence among students. Utilising MAXQDA software to facilitate the analysis, the findings revealed that both methodological and professional competencies were frequently and intensively employed across various study programs. This underscores the pivotal role of practical phases in enhancing the integration of theoretical knowledge with practical application among students.

The analysis identified modal values indicative of a predominant level of reflection and professionalism in the students' presentation of their work. These findings highlight the substantial value of practical experiences in fostering the academic and professional growth of students within their respective creative careers. This study thus contributes to a deeper understanding of the practical application of academic learning and its implications for professional development in creative disciplines.

Qualitative interviews using criterion-categorical guidance:

In the context of practice-based interviews, supervisors employed structured, exploratory, and problem-centred methods to delve into the development of student competencies and the practical phases of their education. Adhering to a context-specific guideline, these interviews comprehensively addressed elements pertaining to professional competence, reflective capacity, and the process of constructing professional identities. The qualitative component of this study involved ten seasoned male professionals from diverse sectors within the creative industries, including media business, digital games, and UX-Design.

Following the data collection phase, the responses were systematically processed using MAXQDA software. This involved coding and thematic categorization, which facilitated a nuanced analysis of the data. The findings from this analysis highlighted the critical importance of specific guidance schemes in the professional development process. Moreover, the results provided insightful perspectives on the integration of theoretical knowledge with pragmatic practices and the influence of internships on professional growth. These insights underscore the multifaceted impact of structured experiential learning on shaping the competencies and professional identities of students within these dynamic fields.

Methods-Triangulation Research Results:

This research employs a methodological triangulation approach, effectively integrating quantitative and qualitative data streams to address three primary themes: the practical aspects of the training, the application of theoretical concepts, and the enhancement of competencies and attitudes towards practical engagements. This comprehensive approach is designed to facilitate a robust assessment of the theory-practice transfer, a process validated by the calculated reliability of the scale, which stands at 0.803. Additionally, the awareness of theoretical applications in practical settings among students in the 180-day phase is reported at 94%, indicating a high level of theoretical engagement.

The synthesis of data from interviews, practice reports, and questionnaires has been instrumental in confirming the effectiveness of practical phases in fostering competence development. The findings highlight a significant enhancement in key competencies, notably communication and collaboration. Furthermore, even the least experienced participants displayed considerable growth, underscoring the universal benefit of the practical phase across all levels of prior industry exposure.

The empirical evidence thus supports the premise that the practical application of learned theories not only sharpens students' skills but also broadens their professional capabilities, making this approach both applicable and beneficial in educational settings.

A pivotal finding of the study pertains to the students' reflective competence, as evidenced by a Cronbach's alpha coefficient of 0.933. This metric corroborates the high level of consensus among students—94.9%—regarding the enhancement of their reflective abilities due to the practical phase. Students attribute this growth to the opportunity to engage in self-examination, ethical reasoning, and critical self-evaluation, all of which are essential skills for professional development and decision-making.

Furthermore, the research indicates a significant enhancement in professional competence, particularly in aspects such as documentation skills and interactions with other professionals. Students reported a marked improvement in their understanding of organisational procedures and the legal frameworks pertinent to their fields of practice, underscoring the practical phase's role in bridging theoretical knowledge with real-world applications.

In terms of interpersonal and teamwork capabilities, there was a reasonable and gradual increase in cooperative competence. This improvement reflects the students' enhanced ability to manage relationships with various stakeholders and effectively coordinate teamwork tasks within their community of practice. These findings highlight the substantial impact of practical experiences on fostering key competencies that are crucial for professional success and effective collaboration in workplace settings.

Significant enhancements were observed in communication skills, which are critical for professional success. Students reported a marked reduction in the difficulties associated with expressing ideas and managing interpersonal relationships. This improvement is largely attributed to the refinement of conversational abilities, particularly in active listening, facilitated by the practical phase of their training. Moreover, presentation skills have notably advanced, serving as crucial tools for articulating ideas and delivering constructive criticism within team settings. This enhancement has fostered a greater degree of freedom in participation during meetings, enabling students to explore diverse solutions more effectively.

Further studies underscore the practical phase's role in bolstering methodological competence, notably by enhancing students' confidence in employing research methods and their critical understanding of social contexts (Vindigni, 2024). This newfound competence is invaluable for developing targeted action strategies that address specific industry demands and for grasping methodological approaches pertinent to professional practice.

The process of professionalisation is distinctly observed as students begin to assume their professional roles, gaining a deeper understanding of their specific niches and the appropriate professional behaviours within those contexts. This transition is indicative of the comprehensive development fostered by the practical phase, which not only enhances specific skill sets but also integrates these skills into the broader professional identities of the students.

Context factors for an efficient, effective, and satisfactory practice phase with regard to PAS-1032, DIN EN ISO 9241-11, -110, and -210

The foundational elements of practical phases in media and creative industries are influenced by several critical factors. Standards such as DIN EN ISO 9241-11, -110, and 9241-210, along with PAS-1032, MEDA, AKAB, and SODIS, emphasize the importance of learner-centeredness, particularly in contexts involving human-computer interactions (HCI) (Vindigni, 2023c; Vindigni, 2023e; Vindigni, 2023g; Vindigni, 2020). These usability standards are designed to ensure that the product design aligns with user needs, enhancing the usability of digital interfaces.

Feedback from students is instrumental in identifying key priorities such as the integration of theory and practice and the alignment of educational experiences with career aspirations, both of which significantly influence decision-making processes and competence development. Satisfaction surveys among students highlight a positive reception towards the 180-day internship model, which is further augmented by robust organizational support and the successful attainment of learning objectives. Additionally, the inclusion of independent seminars, when paired with structured support and systematic learning approaches, has been shown to enhance student satisfaction.

The research hypotheses derived from this data focus on elucidating the interdependencies among HCI, reflectivity, and satisfaction rates, with specific reference to the variations across different study programs. This analytical approach aims to uncover how these elements collectively influence the educational experience and outcomes in the context of media and creative industries.

Discussion:

The transition from traditional lecture-based teaching methods, which are often criticised for their limited efficacy in fostering deep learning, to more dynamic, activity-based, and socially oriented learning strategies represents a significant paradigm shift in educational practices (Feldman, 2019; Lin and Spector, 2017; Esmonde and Booker, 2016; Baeten, 2010). Scholars increasingly advocate for adaptive blended learning environments that leverage technology and data analytics to enhance educational outcomes. However, certain challenges persist, notably the scarcity of robust methodologies in the comparative analysis of competence development and an over-reliance on self-assessment data.

Recent research underscores the benefits of interactive learning environments, particularly those involving advanced computer interfaces, which have been shown to increase student satisfaction and encourage reflective learning practices. These findings highlight the value of modern interfaces provided during internships, which contribute significantly to the learning experience. Nonetheless, the variability in learning objectives across different fields suggests that generic internships may not suffice to meet specific educational needs, thereby necessitating more tailored experiential learning opportunities.

The analysis further reveals the imperative for universities and industry leaders to forge effective collaborations and partnerships. Such alliances are crucial to address the diverse needs of learners in an era marked by increasing integration of technology in educational settings (Vindigni, 2023; Mulder, 2017; Richard, 2010). In this context, well-structured internships that incorporate appropriate technological tools can provide meaningful and relevant experiences for students, aligning with the dynamic requirements of contemporary educational systems. These internships not only cater to immediate educational goals but also prepare students for the complexities of the professional world.

Conclusion:

This study underscores the substantial benefits derived from unplugging technologies, highlighting their critical role in enhancing adaptiveness, fostering authenticity, and facilitating the processes of reflection and knowledge construction—key elements that imbue meaning within both university and professional practice domains. Conducted at the XY University of Applied Sciences, the research focuses on a 180-day practical phase that significantly contributes to the development of acquisition-formative and reflective competencies essential for media and creative professions.

The findings of the study validate a robust theory-practice linkage, confirming the efficacy of integrating theoretical knowledge with practical application. This integration is crucial for students, empowering them to effectively translate academic concepts into real-world settings. Moreover, the research advocates for the necessity of continual evaluation and refinement of these practical phases. Such assessments are vital to ensure that the developmental needs of learners and professionals are met, aligning educational outcomes with the evolving demands of their future careers.

Ultimately, this study serves as a significant indicator of the need for educational institutions and professional entities to reevaluate and possibly enhance their approaches to competency development. By doing so, they ensure that these strategies remain relevant and effective in preparing students and professionals for the complexities of contemporary and future professional landscapes.

Adaptive and re-adaptive learning models, underpinned by artificial intelligence (AI), hold substantial promise for enhancing the acquisition of professional competence. These AI systems are tailored to ensure learner-centeredness by employing sophisticated scaffolding and diagnostic assessments. Such mechanisms efficiently eliminate unnecessary delays in the training process and facilitate the active development of complex competencies, allowing for their gradual integration into the learners' operational frameworks.

Moreover, AI significantly contributes to the development of metacognitive skills by fostering reflection and promoting an acute awareness of one's cognitive processes. This supports effective self-management and goal attainment within both academic and professional contexts. The cyclical nature of these learning models optimises the practical application of skills, ensuring a realistic transfer of competencies that transcends traditional learning methodologies.

Furthermore, AI not only aids learners in achieving their educational objectives more effectively but also enhances the capacity of supervisors to tailor and enhance learning goals based on real-time data and feedback. Ultimately, these AI-enhanced learning models enrich educational experiences by blending self-directed learning with interactive activities. This integration encourages learners to independently discover solutions, thereby expanding the avenues for developing professional competence well beyond the confines of conventional online classroom settings.

For adaptive learning to be effectively integrated within creative disciplines such as design and media, tailored strategies that align with disciplinary demands and optimise technological capabilities are essential. The recommendations for achieving this include instituting cycles that facilitate the creation of adaptable platforms, enriching curricular content, and diversifying learning activities. This entails designing activities that mimic real-world practice scenarios, incorporating flexibility in delivery, and embedding theoretical knowledge through practical application using case studies and simulations.

Advanced technologies such as Augmented Reality (AR), Extended Reality (XR), and Virtual Reality (VR) should be employed to enhance cyber-physical learning environments. Additionally, the deployment of smart recommendation engines and collaborative tools is crucial for fostering a learner-centric atmosphere. To ensure the successful implementation and sustainability of these adaptive practices, intensive faculty training, careful selection of educational models, and robust support structures must be prioritized. These elements are fundamental to the adaptation and enhancement of teaching practices, enabling a responsive and effective educational experience in creative fields.

Limitations and Prospects for Future Research in (Re-)Adaptive Learning

While this review underscores the considerable potential of adaptive learning systems in enhancing educational outcomes, extensive further research is mandated to refine their effective integration. Notably, current investigations predominantly scrutinise standalone adaptive platforms rather than their incorporation within expansive teaching and learning frameworks, as highlighted by recent studies (Sun, Shen, & Lin, 2020; Montebello, 2017; Bakharia et al., 2016; Michalski, 2012). A comprehensive examination that melds adaptive learning components with other pedagogical advancements is vital to recognising their full impact. Moreover, there is a scarcity of robust comparative studies that distinctly attribute unique advantages to adaptive methodologies, independent of extraneous variables.

The pursuit of large-scale, multi-year investigations that monitor long-term competence development with the aid of consistent mixed-method approaches is crucial to amassing the requisite empirical support for these educational innovations. Additionally, there is an overemphasis on cognitive outcomes within adaptive learning research, often neglecting crucial aspects such as identity formation, self-efficacy, and other affective components integral to professional competence. The frequent use of narrowly focused standardised assessments instead of holistic, integrated tasks calls for the development of validated measures that encompass a broader spectrum of competencies (Kurni et al., 2023; Guralnick, Auer, & Poce, 2022; Baeten, 2010).

Addressing these educational challenges also necessitates alignment with the ergonomic principles outlined in DIN EN ISO 9241-110, which emphasise adaptability, controllability, learnability, task suitability, self-descriptiveness, conformity to user expectations, and error tolerance. These principles are essential for fostering environments that enhance individual learning experiences and ensure accessibility, thus contributing to the high-quality education goals set forth in SDG-4 of the 2030 Agenda for Sustainable Development.

Furthermore, comparative research across various professional fields could elucidate the most effective adaptive learning designs tailored to specific educational contexts, moving away from a generalised approach. In summary, while the existing literature suggests a burgeoning promise for adaptive teaching methods to revolutionise higher education and facilitate comprehensive professional competence development, thoughtful implementation and continued research are imperative. As Mulder (2017) posited, the challenge now lies in crafting holistic instructional

models that optimally harness adaptive e-learning technologies to bolster competence development in higher education.

Future research should focus on constructing evidence-based adaptive designs through comparative studies, longitudinal analyses, and multidimensional evaluations to unlock this transformative potential across different disciplines.

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Conflict of Interest

The author declares no conflict of interest.

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