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Integrating Edupreneurship in Language Education: Fostering Entrepreneurial Motivation Among German Department Students

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ABSTRACT

Entrepreneurial learning in higher education increasingly requires students to design and implement product innovations relevant to their disciplinary contexts. In German Departments, entrepreneurship-oriented courses integrate language competence with business thinking, challenging students to transform ideas into feasible products while addressing practical constraints. This study employed a descriptive qualitative design involving students enrolled in Teacherpreneurship and Unternehmendeutsch courses in the 2023/2024 academic year. Data were collected through observation sheets, performance assessments, and questionnaires, and analyzed using data reduction, display, and verification techniques. Student product innovation followed three stages: planning, development, and implementation. The planning stage emphasized structured discussions, case analyses, and exercises to formulate business visions and missions. The development stage produced prototypes and written business plans, while the implementation stage resulted in goods and service-based products. Nine categories of obstacles were identified, encompassing conceptual, technical, and operational challenges. Despite these difficulties, students demonstrated effective problem identification and analysis, receptiveness to feedback, improved data utilization, and adaptability. The findings indicate that students developed adequate entrepreneurial competencies, particularly in problem-solving, adaptive thinking, and the use of feedback. These results highlight the effectiveness of integrating entrepreneurship into language education, while also underscoring the need for targeted support to address implementation barriers.

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1. INTRODUCTION

In the context of German language education, graduates are increasingly expected not only to possess linguistic competence but also to demonstrate employability skills that enable them to adapt to diverse professional pathways, including education, creative industries, and language-based services. The limited availability of conventional teaching positions has encouraged German language students to explore alternative career opportunities that integrate language expertise with innovation, creativity, and entrepreneurial thinking. Consequently, language education is no longer oriented solely toward linguistic

mastery, but also toward preparing students to create educational value and sustainable professional identities. The development of information technology in the world is increasingly rapid, with various new innovations that continue to emerge to increase effectiveness and efficiency in human activities (Hadiyastama et al., 2022). Globalization has a significant impact on education today. Education is increasingly accessible through online courses and distance learning. Digital learning media, including apps, websites, and virtual reality, are expanding and enriching the learning experience (Maharani et al., 2022). Education in the age of globalization is now more vital than ever to ensure that learners are equipped with the skills to learn and innovate, using technology and information media. Known as the digital age, all aspects of human life have adopted these technologies to replace manual interventions. The transformation from manual activities to information systems continues over time, so that in the future, all human activities cannot be separated from information technology (Danuri, 2019).

The direct impact of the times is to demand high digital literacy as evidenced by the significant impact of the influence of digital literacy on entrepreneurial behavior (Saputri et al., 2022). During the development of digital technology, which is now so massive, students are required to keep up with the times well; all knowledge about entrepreneurship is given with the aim that students' interest in doing business can grow in the soul of each student (Darmawan, 2021). Higher education has an impact in developing interest and finding influential variables in entrepreneurial behavior. The era of globalization is characterized by the availability of abundant information that can be accessed anytime and anywhere, and communication that can be done from and to anywhere. Therefore, students in the field of education must be able to compete more in order to survive in the social environment of society, state universities, especially the State University of Malang, equip students with courses that teach about this (Wijaya et al., 2016).

Some of the things that are prepared by education in Indonesia are through the curriculum used at the State University of Malang, namely MDPK (Basic Character Development Subjects): Religious Education, Pancasila Education, Civic Education and Innovation Management; MKK (Scientific and Expertise Subjects): Deutsch, Entrepreneurship, Medien Im Deutschunterricht, and so on; MDKP (Basic Scientific Education Subjects): Introduction to Education Science, Learner Development, and Learning and Learning, and MPPD (Specialization and Self-Development Subjects): Teacherpreneurship, Unternehmendeutsch and others. The knowledge gained in these courses is the basic capital as an entrepreneur, and the various skills acquired during lectures will stimulate students' interest in becoming an entrepreneur (Harianti et al., 2020). Through a series of activities guided by strategy, innovation, and cooperation, the goal is to strengthen students' skills in leadership, problem solving, critical thinking, collaboration, and interpersonal skills that are important in the future, especially for students in the German Department. Within this framework, edupreneurship becomes particularly relevant in language learning, as it enables students to transform linguistic knowledge into innovative educational products, services, and learning media. In foreign language education, edupreneurship functions not merely as business training, but as a pedagogical approach that connects language competence, creativity, and real-world problem solving.

The German Department includes Teacherpreneurship as one of its courses within its curriculum catalog. The Department implements Teacherpreneurship as an essential course within its Entrepreneurship Education curriculum. Teacherpreneurship courses form an essential component of higher education curricula because they provide students with entrepreneurial knowledge and practical skills to achieve business success (Lasekan et al., 2020). The German Department established this course as part of its entrepreneurial development focus to develop Teacherpreneurship spirit in students. In this context, teacherpreneurship differs fundamentally from general entrepreneurship. While general entrepreneurship primarily emphasizes profit-oriented business creation, teacherpreneurship focuses on developing entrepreneurial competencies specifically for educational purposes. Teacherpreneurship prepares prospective teachers to design innovative learning solutions, educational products, and pedagogical services that create educational value rather than purely commercial gain. Thus,

entrepreneurial activities in Teacherpreneurship are pedagogically driven and aligned with educational missions.

The educational application of business principles through edupreneurship serves to develop innovative solutions and enhance operational efficiency while creating educational technology to improve learning access and quality (Budiono & Dwiprabowo, 2022). With the inclusion of business in edupreneurship learning, the main focus is not about commercial profit but how the business plays a role in building the entrepreneurial spirit in students. Edupreneurship is a concept that combines two words, namely "education" and "entrepreneurship" which respectively mean education and entrepreneurship (Maruntelu, 2023). Literally, edupreneurship refers to an approach to combine education and entrepreneurship. While learning and skill development are required to be involved in business development, aspects of education and learning are also considered (Tuzzuhro et al., 2023). Edupreneurship emphasizes education that focuses on forming students who are creative, innovative, and reliable in creating opportunities and dare to face life's challenges (Thayyibi & Subiyantoro, 2022).

Despite the growing emphasis on edupreneurship in higher education, empirical studies that specifically examine the integration of edupreneurship within foreign language teacher education remain limited. Most existing research focuses on entrepreneurship in general education or business-related disciplines, while the application of edupreneurship in language-based teacher training—particularly in German language education—has received insufficient scholarly attention. Moreover, few studies have explored how entrepreneurial motivation is fostered through instructional design in Teacherpreneurship courses, especially in relation to students' product innovation processes and their responses to implementation challenges.

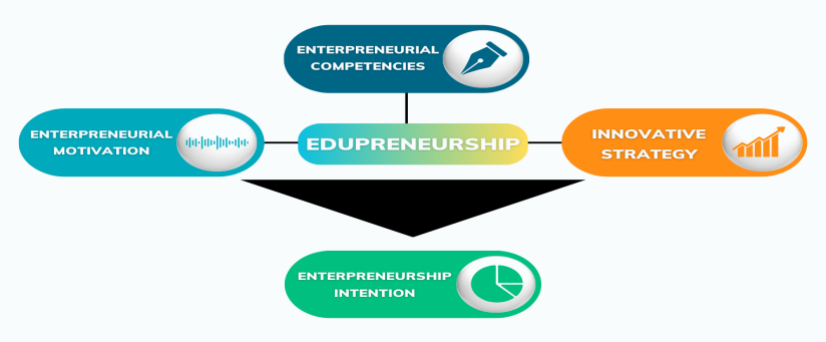

Figure 1. Entrepreneurial Intention Theoretical Model

In Figure 1 theoretical model of Entrepreneurial Interest is important to know, with the three factors together forming a unity to make an Entrepreneurship Intention, namely a person's desire and readiness to innovate in learning. The design of making a product can represent the Innovative Strategy factor, in this factor can encourage the ability to think critically, communicate, and manage risks in considering how the design of product innovation in Teacherpreneurship learning is one form of application of the Innovative Strategy factor. Entrepreneurial Motivation in students, which is instilled in the Teacherpreneurship course, plays an important role in dealing with obstacles during the learning process. Students who have high entrepreneurial motivation tend to have an unyielding spirit, adaptability, and willingness to continue learning from mistakes.

The motivational approach of Teacherpreneurship enables students to transform their educational problems into business ventures that require both creative and innovative solutions for classroom management and learning design. Through this course, students develop their entrepreneurial skills continuously, which provides them with both theoretical knowledge and practical abilities needed for educational settings (Diegoli et al., 2018). The application of learning materials through case studies and team-based assignments enables students to develop innovative solutions for educational problems. Through their learning experience, students develop their skills to recognize potential along with generating new concepts while handling resources effectively. The research objectives benefit from high entrepreneurial motivation since it fosters entrepreneurial competency development. Various barriers

commonly emerge during the implementation of these innovations that prevent their success. These obstacles can be a lack of entrepreneurial motivation, inadequate skills, and innovation strategies.

The Teacherpreneurship course integrates entrepreneurship concepts through its curriculum and teaching approaches that teach business management principles and innovative practices for educational applications (Cui, 2021). The Teacherpreneurship model provides education that develops both innovative and creative competencies for students who will become more innovative educators and generate innovative educational solutions. The ability to generate student opportunities stands as an essential element of edupreneurship within Teacherpreneurship according to Budiono & Dwiprabowo (2022). Students should benefit from new educational possibilities such as teaching methods, educational technology, and educational business models.

The concept of courage in Teacherpreneurship prepares upcoming teachers to handle classroom management as well as technology adaptation and educational innovation implementation (Thayyibi & Subiyantoro, 2022). The Teacherpreneurship course shows specific outcomes which guide researchers to examine both German Department students' learning achievements and their educational process. According to (Amrul et al., 2022) shows that the knowledge gained during lectures, especially in Entrepreneurship courses, can be used in entrepreneurship. Education can foster an understanding of entrepreneurship, and an understanding of entrepreneurship can make someone interested in entrepreneurship (Budi & Fensi, 2018). Student performance in entrepreneurship can be improved by understanding the concept of IKIGAI. When students find their ikigai in teaching, which combines passion, mission, profession, and vocation as teachers, they will be more motivated to perform well and design innovative solutions in education. In the Teacherpreneurship course, the exploration of ikigai can help students find purpose and deep meaning in their role as educators. In this study, IKIGAI was not merely referenced as a philosophical concept but was applied as an instructional framework within the Teacherpreneurship course. Students were guided to reflect on the four IKIGAI elements—what they love, what they are good at, what the world needs, and what can generate value—during the stages of idea generation, product design, and innovation planning. This framework was operationalized through reflective activities, product conceptualization tasks, and project-based assignments.

IKIGAI is famous for building an entrepreneurial spirit initiated by Professor Akhihiro Hasegawa, IKIGAI has an important role in building an entrepreneurial spirit. IKIGAI is a basic concept that interprets the purpose of Japanese cultural life which means having a reason to live (Kono et al., 2019). Applying IKIGAI can be by integrating 4 important elements, namely, what you love, what the world needs, how you get income from it, and what you are good at. This goes hand in hand with the concept of edupreneurship which combines education and entrepreneurship, and in the context of Teacherpreneurship IKIGAI can help teachers to be more creative and innovative in teaching, and can help create added value in the field of education.

Figure 2. IKIGAI Concept

The IKIGAI philosophy can help students find purpose in creating a learning product. Combining the two elements of passion and expertise will create a new element of passion and it will have a significant impact on student work. The product created is "E-Comic Bilingual" which is made to introduce real life situations in Germany to help readers understand and experience the use of language in everyday life, improve German language skills through interactive media and introduce aspects and culture of Germany. By understanding what people like and combining it with usefulness for others, students can produce more relevant products. By integrating the IKIGAI philosophy in the Teacherpreneurship course, students can explore and harmonize their personal and professional goals, and make a greater impact in the field of edupreneurship (Putri, 2022).

In the Teacherpreneurship course, students are given the opportunity to explore their interests and passions. In an effort to improve German language mastery, the use of educational games such as "Deutsche Nivellierung" by students can be an effective tool. By applying a structured educational approach (Aini & Kirana, 2023), learning can become more interactive and interesting for students. This helps to deepen the user's understanding of the German language more effectively and enjoyably.

Therefore, this study aimed to examine the design of product innovation developed by students of the German Department within the Teacherpreneurship course, to identify the obstacles encountered during the innovation process, and to analyze students' responses in overcoming these challenges through solutive strategies. Based on these objectives, the research addressed the following questions:

(1) How do German Department students design product innovations within the Teacherpreneurship course?
(2) What obstacles do students encounter during the implementation of their product innovations?
(3) How do students respond to and overcome these obstacles in the context of edupreneurship-based learning?

2. METHODS

The research method used in this research is descriptive qualitative. Qualitative research is research in which the acquisition of data is not in the form of numbers, but in the form of words, phrases, and sentences that aim to explain phenomena or events (Fadli, 2021). This method is relevant for exploring complex thoughts such as edupreneurship. The use of a descriptive qualitative design was justified because this study sought to capture in-depth processes, experiences, and meanings underlying students' product innovation activities rather than to measure variables quantitatively. This approach allowed the researchers to explore how edupreneurship was implemented in learning activities, how students interpreted entrepreneurial experiences, and how obstacles emerged during the innovation process. Descriptive qualitative research is particularly suitable for examining educational phenomena that are context-dependent and process-oriented. The descriptive qualitative approach was taken because the data collected emphasized the description of the learning model applied (Sugiyono, 2021), constraints and weaknesses and which became the main focus of this stage. The entrepreneurship learning process is carried out starting from input, process to output.

The instruments used in this research are observation sheets, performance sheets and questionnaires. The observation sheet used in this study aims to systematically observe the learning planning process carried out by students so as to maximize the potential of edupreneurship in learning. The performance sheet serves to document each stage of student work, so that obstacles and challenges faced by students in the learning process can be identified. The questionnaire used in this study contains questions about student responses whose data are obtained using a Likert scale. With the description of the Likert scale questionnaire value, namely very good, good, quite good, not good, very bad. The data analysis used in this research is based on the Miles and Huberman model data analysis technique (Miles & Huberman, 1994).

Table 1. Data Analysis Procedures

Stage	Description
Data Collection	Data were collected through observation sheets, performance records, and questionnaires during the learning process.
Data Reduction	Data were selected and focused on student product designs containing linguistic elements and edupreneurship indicators, based on criteria such as urgency, innovation, market opportunity, results, publications, and benefits.
Data Display	Reduced data were organized into matrices, narratives, and summaries to facilitate interpretation of patterns and relationships.
Conclusion Drawing/ Verification	Conclusions were drawn by interpreting recurring patterns and verified through triangulation of data sources and methods.

The first stage is the collection of data that has been collected from various research instruments, namely through observation sheets, performance sheets, and questionnaires. The data that has been collected then goes through a filtering process where the data is selected according to the appropriate student product design, namely, having elements of linguistics, because not all design products made by students have these elements, which then produce relevant data to emphasize the research objectives. The assessment criteria are seen from urgency, innovation, market opportunities, results, publications, and benefits. The next stage is data presentation, which involves organizing the data that has been reduced into a systematic format so that it can facilitate understanding the content of the data and planning the next activity process. In addition, to optimize the validity of research findings, it is also important to triangulate or combine various data sources and methods. This approach provides an opportunity for researchers to ensure that the research results are more accurate, comprehensive, and reliable.

Prior to data collection, the research instruments underwent a validation process to ensure their clarity, relevance, and consistency with the research objectives. The observation and performance sheets were reviewed by experts in language education and entrepreneurship to assess content validity. The questionnaire items were examined to ensure that they adequately represented indicators of student responses toward edupreneurship learning. Minor revisions were made based on expert feedback to improve wording and alignment with the study focus.

The research subjects were 75 undergraduate students enrolled in the Teacherpreneurship and Unternehmendeutsch courses in the 2023/2024 academic year. The participants were selected using purposive sampling, with the criteria that students were actively participating in both courses and were involved in product innovation activities related to German language learning. The participants represented students at an intermediate stage of their study program who had already acquired basic linguistic competence and pedagogical knowledge. This sampling strategy was employed to ensure that the data reflected authentic learning experiences in edupreneurship-based instruction. This research process illustrates the learning model used and identifies the learning process and planning process that is the main focus (Ergawati et al., 2023).

Ethical considerations were addressed throughout the research process. Participation in the study was voluntary, and students were informed about the purpose of the research prior to data collection. All data were collected for academic purposes only, and participants' identities were kept confidential. The researchers ensured that the learning process was not disrupted by the research activities and that student assessment was not influenced by participation in the study.

3. FINDINGS AND DISCUSSION

3.1 Planning Phase of Product Innovation

This study was conducted in a class implementing edupreneurship-based learning as the instructional context. Based on the observation sheets that have been conducted, students show a strong interest in starting a business and have plans to start making product innovations. Through the

observation sheet, it can be revealed that there is high motivation among students to enter the entrepreneurial world. This can be seen from their great interest in developing new and innovative products. However, the observation sheet also indicated that although the motivation to start a business was very positive, some students did not have When students first entered the class, they did not have a clear concept of the product they wanted to realize. This situation suggests that further guidance is needed in the planning and product concept development stages so that students can maximize their potential in entrepreneurship. Several students reported initial uncertainty during the planning stage. One student noted, *"At the beginning, we had motivation but were still confused about what kind of product could combine German language learning and entrepreneurship."* Another student stated, *"After discussions and feedback, our ideas became more focused and realistic."* Overall, students' motivation to start their own business is very positive attitude of students towards starting their own business is very high and they can become successful and innovative entrepreneurs with the appropriate support.

The material presented in the class applies the principles of entrepreneurship in the field of education. The students learn how innovation and creativity can be used to solve the challenges in the education system. Students learn about different business models in education through various examples and case studies and how students can add value to education. The edupreneurship learning evolves into teacherpreneruship, in that the delivery of the material teaches how an educator can integrate entrepreneurial skills into teaching practice. Students learn how important an entrepreneurial mindset is for teachers and how this can improve learning effectiveness and create new opportunities in education (Wardana et al., 2020). The innovation design process of students of the Department of German Literature, in terms of the entire process of developing and putting business ideas into practical products, shows the principles of edupreneurship. The findings of Hägg's (2021) support reflective activities as essential for developing entrepreneurial skills. The activities of creating prototypes and writing business plans by students enable them to grasp actual business implementation processes while simultaneously improving their critical thinking and adaptability through practical experience and self-assessment. Through this teaching approach, students develop essential creativity alongside adaptability as fundamental aspects of edupreneurship. Design refinement benefits from prototyping as well as effective communication of ideas between designers and end users (Kimpel, 2016). Prototyping helps researchers understand how users interact with their product to generate better product functionality. The creation of a detailed business plan stands as an essential component for achieving business success. A business plan contains market analysis together with marketing strategies and financial projections which assist entrepreneurs in comprehending the market while developing plans to reach business targets (Ofy et al., 2022).

This class provides students with a series of learning activities that are effective in building and developing entrepreneurial motivation as well as understanding edupreneurship among students who then produce superior product innovations. Various activities help students to gain theoretical knowledge as well as practical skills required to become a good teacherpreneur. Such as the involvement of students in interactive learning activities, such as group discussions, case studies, and practical exercises, which strengthen students' understanding of the principles of entrepreneurship in the context of education. Through the process of planning, developing and implementing a business idea into a real product, students learn to design a product and draw up a comprehensive business plan.

Of the total products of the design process made by students in the Teacherpreneurship class. The designed products are German learning media. However, it was found that there were 3 products that were identified outside of German learning media. Active involvement in the class, both through discussions and practical activities, shows the enthusiasm and motivation of students to start their own business. With a deep understanding through the learned activities on how to combine the role of an educator with the spirit of entrepreneurship, students gained not only the theoretical knowledge but also the practical skills necessary to become successful teacherpreneurs. The students are equipped with an in-depth understanding of how to combine the role of an educator with the entrepreneurial

spirit. The end result is product innovation that is able to have a positive impact in the world of education and society at large, reflecting the success of a comprehensive learning process such as that carried out by students in the German Department at State University of Malang. The edupreneurship-based learning approach according to the "Entrepreneurial Intention Theoretical Model" demonstrates how education integrates with entrepreneurship to develop students who can solve actual business problems through creativity and innovation. Tuzzuhro's (2023) research confirms this concept by demonstrating that teaching entrepreneurial principles enhances learning results and provides additional academic prospects to students. Edupreneurship bases its primary structure on entrepreneurial competencies which include strategic thinking and problem-solving abilities and effective decision-making skills. The teaching of entrepreneurship through education develops entrepreneurial motivation which in turn grows student determination and their ability to learn from mistakes and maintain perseverance and adaptability. The research conducted by Ekachandra & Puspitowati (2023 reveals that entrepreneurial intentions result from three factors including attitudes toward behavior along with subjective norms and perceived behavioral control which can be improved through effective entrepreneurship education. The adoption of edupreneurship within Teacherpreneurship and Unternehmendeutsch courses enables students to acquire business capabilities together with drive and strategic approaches to entrepreneurship success while improving educational results and developing innovative possibilities.

Observation data indicated that 41 out of 44 student products (93.2%) were explicitly designed to support German language learning, while 3 products (6.8%) were categorized as not directly aligned with German language content. This finding demonstrates that the majority of students were able to translate entrepreneurial planning into language-relevant educational products.

Table 2. Language Learning Media Products

Nr.	Group Code	Product Plan	Student Product Outcome	Product Specifications
		Student Service Product		
1	KP 2	Get to Know German Language		This short course provides a Basic Introduction to the German Language. Provides Basic Communication Skills and introduces German culture.
2	KP 5	TalkTune Shortcourse		TalkTune is an online platform that offers short courses to learn German.
		Student Goods		

3	KP 7	Denkmeister Karten		Denkmeister Karten is a game product designed for German language learning. The game is in the form of cards, each card presents interesting questions from various topics, which allows one to learn while playing.
4	KP 8	LARK : Lebensmittel AR Karte		LARK stands for Lebensmittel-AR-Karte, which is a learning media product that uses 2D AR facilities and German audio about German specialties.
5	KP 9	E-Comic Kulturunterschiede		Bilingual comic-based learning media.

Table 2 shows that most student products took the form of interactive learning media and educational services. This pattern indicates a strong tendency toward digital and media-based innovation, reflecting students' awareness of current learning needs and technological opportunities in German language education. The diversity of product types also suggests that students interpreted edupreneurship flexibly, adapting it to their individual interests and competencies. The German Department students participate in the edupreneurship process with extensive dedication to product design. The students direct their efforts toward both product concept creation and multiple stages of product development and improvement. The development of various non-product service plans demonstrates this fact. The process begins by understanding market requirements followed by product development efforts and regular assessment to confirm product excellence and market appropriateness. The spirit of edupreneurship depends on achieving consistency between initial designs and final products. Edupreneurship requires permanent learning as well as market adjustment abilities. The internalization of these principles by students helps them preserve their initial vision while they keep their doors open to needed feedback and changes.

Both Schöne M and Spiele Mich products demonstrate faithful adherence to their original mission while actively receiving feedback along with necessary modifications. The research by Abdalla & Nakagawa (2022) demonstrates that adaptability and flexibility skills play a crucial role in entrepreneurial success. Students who adopt the edupreneurship mindset will conduct ongoing assessment and modification of their business strategies through market feedback alongside changing market conditions. The path from design to product outcome demonstrates an iterative approach which adapts to changing conditions. Entrepreneurship education should concentrate on developing critical thinking abilities as stated in Santana-Vega & González-Morales (2020. These abilities include designing products from concept to completion and problem-solving through student adjustments for new inputs and technological enhancements and innovation across education technology language and cultural domains. The combination of theoretical entrepreneurship education with practical business application results in students who become better equipped to handle real-world obstacles while

developing creative solutions for market needs.who are better prepared to face real-world challenges and produce innovative and relevant products.

3.2 Challenges in Product Innovation Design

The problems that occur are seen in the student action plan which will be shown on the performance sheet in the performance sheet conveyed the initial conditions and the student treatment column. The products developed by students in the Teacherpreneurship course cover several fields, namely services and finished goods. In the service sector, students focus on innovations in the education and information technology sectors. Meanwhile, in the field of finished goods, students create various goods that are ready to be marketed, by combining various aspects such as design, function, and sustainability. This multidisciplinary approach allows students to apply the theories and concepts they have learned into student products, thus developing solutions that are comprehensive and relevant to environmental needs.

3.2.1 Conceptual Challenge

Through the performance sheet, several indicators of problems in product design faced by students can be identified. Products designed often lack novelty or innovation, which results in the product being less competitive or desirable in the market. Novelty is an important aspect of product innovation, and the lack of this element can be caused by the limited research and development of creative ideas conducted by students.

3.2.2 Technical and Financial Challenge

The next problem is related to funding. Students often face obstacles in obtaining sufficient financial resources to support the product design and development process. This lack of funding not only hinders product prototyping, but also limits students' access to the latest materials and technologies needed to realize innovation.

In addition, the products created by students are very diverse. One example of a student-designed product is a book. In making books, students face various obstacles starting from the design process, conceptualizing ideas, to translating them into usable final products. The design process requires special skills that have not been fully owned by students. In addition, abstract concepts of ideas are often difficult to translate into a concrete and attractive form for readers. This limitation in design skills and idea translation resulted in a less than optimal book.

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TRACK RECORD OF STUDENT ACTIVITIES

FIELD	BASELINE CONDITIONS	STUDENT TREATMENT	GOAL	POTENTIAL OUTPUTS GENERATED	DESCRIPTION
PRODUCT	The baseline condition of the product is still a printed form, namely game cards. The game was originally CEFR-based and there was no orientation of the ZITRUS method, and with the aim of practicing speaking and listening aspects.	Changed the format to become an app with the aim of modernizing and adding the ZITRUS method for app development. Worked with the app developer and will promote again with the marketing team.	Further complement the learning content through product analysis of the method and prototype refinement. Therefore, by turning it into an application, it will look more modern and can be used by ordinary learners.	Application and research methods on ZITRUS.	Achieved
PRODUCTION/ OPERATIONAL	Baseline production still uses print, namely paper and packaging. Dissemination has not yet left the campus. Only for complementary assignments.	The application was developed in collaboration with the developer as an implementation of the existing card. Development was carried out by IT supervisors and creators.	Updating is necessary because the market for conventional goods is still very difficult to sell.	A beta application for testing and a finished or final application that integrates AR.	Achieved but unable to integrate AR due to unqualified elementary school.
MARKETING	There is no form of marketing done yet, only including Instagram and promotion through college friends.	For treatment after getting the idea, marketing development will be carried out more massively. Making the application as the main menu, and using social media marketing methods and offers to schools and word of mouth.	The goal is to reach a wider range of consumers and make product branding better and more targeted with marketing supervisors.	Instagram social media accounts, websites, shopee, and other marketplaces to get the attention of German learners.	Achieved only through instagram app platform promotion and word of mouth
HUMAN RESOURCES	Initially, it was only developed by 4 students of the German Language Education Study Program.	The first developers cooperated with informatics engineering students and accounting students who could work in the required fields. Not forgetting about the content that is presented requires a team for content improvement, so a partner for content supervisors from the German Language Education Study Program is also invited.	To better understand the items to be discussed both regarding applications and AR, marketing, and German content	Build a good network of cooperation and can work together for the initial goal of marketing the DENKSCHNELL application more massively.	Achieved
FINANCE	It is still in the form of collective and self-funding, with no income and expenses yet.	Evaluate the cards that have been made and compile expenses for promotion, application creation and income from sales and cooperation.	To clarify the financial flow and not gray, because it is only a simple report. There is a planning report on the application.	Financial statements and monthly reports of apps sold to the market.	Not yet achieved because there is no attention even in the form of a card there is no discharge yet
INSTITUTION	Institutions only take the form of peer-to-peer cooperation, and use peer-to-peer cooperation.	Collaboration with German-related fields such as the Goethe Institut for product validation and working with schools for sales or working with app developers.	To build a larger network and understand a wide range of applications and views on what learners need through credible and trusted institutions.	Gaining short and long term contacts and cooperation with related institutions in development, sales, and content.	Not yet achieved

Link Mass media publications
https://ngepop.id/saintek/denkschnell--ajak-mahasiswa-sastra-jerman-um-belajar-berbicara-melalui-aplikasi

Figure 3. The production process of the applied technology business
Source: (Aini, 2024)

Figure 3 shows the students' product of the applied technology business, where the design process revealed several problems that were documented in the action plan column. The obstacles that occurred are presented in the action plan column at each stage of development, starting from product creation, production or operational processes, marketing, to human resource management.

3.2.3 Time and Implementation Constraints

One of the main challenges was the limited time available, which was considered insufficient to complete the product to the expected standard. In addition, the need for updates in user interface and user experience also became the main focus after the evaluation showed deficiencies in these aspects. The design of this website required creativity and high technical skills to produce an engaging user experience. In addition, the creation of the website chosen by the students was faced with some specific challenges such as determining the content (information to be used), and design (layout). Determining the right content requires a fairly deep understanding of the target audience and the needs of the environment or community, which is often a challenge for students. The complex and time-consuming programming process is also a significant obstacle, as it requires in-depth technical knowledge and perseverance to complete each stage of website development.

Technical problems, such as the lack of small group trials, also affect the quality and weakness of the product. Limited funding is an additional obstacle that is often encountered during the process of designing product innovations. Complex technical mechanisms and insufficient funds hinder the overall realization of the product. One student explained, *"We had ideas, but limited funding made it difficult to test and improve the prototype properly."* Another student mentioned, *"Time constraints forced us to simplify features that we initially planned."* In feature development, errors or glitches that arise require re-experimentation to ensure conformity with the set objectives. At the marketing stage, students faced challenges in achieving the target number of website visitors. To overcome this, improvements to the website were planned as a first step before continuing with more intensive marketing efforts. These issues provide an overall picture of the challenges faced in the process of product innovation in an academic environment.

3.3. Student Solutions to Innovation Challenges

The questionnaire sheet in this study contains 15 questions related to student responses. A total of 40 students of the German Department filled out the questionnaire in this study. The questionnaire sheet distributed using Google Form application to collect data from the respondents. Based on the questionnaire results, the students' ability to solve the 9 obstacles faced in product development can be described comprehensively. The analysis of problems by students relies on appropriate data and information which the efficiency of product planning increases because each step relies on precise and current information. Students demonstrate confidence in their ability to develop effective plans for solution implementation which leads to better time management and decreased product launch delays.

Table 3. Summary of Student Responses to Innovation Challenges

Aspect	Dominant Response
Problem identification	High (Mean > 4.0)
Team collaboration	Moderate–High
Openness to feedback	High
Use of data	Moderate
Adaptability	Moderate–High

The students demonstrate creative problem-solving abilities by developing multiple solutions, which indicates their capability to create suitable product designs when needed. The ability to make decisions with confidence serves as a vital competitive advantage against major manufacturers because it enables them to pursue dangerous yet profitable opportunities. The students demonstrated confidence in their ability to assess each proposed solution's potential success which led them to select the most cost-effective solutions that could address funding issues.

The students' confidence about their ability to work with teams effectively demonstrated that team collaboration enabled them to exchange knowledge and abilities which compensated for personal weaknesses through group power. The students felt they could effectively communicate with their team members to resolve problems which minimized both misunderstandings and miscommunication during design work. Students showed essential adaptability by adjusting to new situations and changes which proved vital for making dynamic adjustments to plans based on changing conditions and emerging needs. The problem-solving questionnaire completed by Teacherpreneurship students produced important findings. Most participants expressed confidence in their ability to detect product-related problems because they scored approximately 4 points out of 5 on the assessment scale.

Most respondents, 42.5%, felt fairly reliable in identifying problems with their products, while another 10% felt very reliable in this ability. On the other hand, 30% of respondents felt that they were fairly good at troubleshooting, but there were also 12.5% who felt less reliable, and 5% who felt very unreliable. This data suggests that while the majority feel they have adequate skills, there is a minority who still need to improve their skills in identifying and addressing problems with their products. This is important to note in efforts to improve product and service quality, as problem identification skills are one of the key factors in maintaining and improving product quality. Most respondents believe that they are thorough in analyzing situations before determining solutions, although there is variation in the answers that suggests some still feel the need to improve. The use of relevant data and information in problem analysis was also quite frequent, although there were some respondents who admitted to not utilizing data optimally. Students, being able to critically and systematically analyze the shortcomings and challenges in the products developed, students can gain a deeper insight into what the market really needs and wants. As such, students can conduct more thorough market research by understanding consumer trends and collecting relevant data to inform product development decisions, identifying patterns and trends that may not be immediately apparent, and adapting products accordingly.

Skills in identifying problems also enable students to design more efficient product plans. Better allocate resources, set the right priorities, and avoid wasting time and money on aspects that do not add significant value. The product development process becomes more focused and productive. The capability drives ongoing innovation because students actively pursue betterments to the product through market feedback analysis and problem detection. The difficulties in finding suitable market products along with inefficient product planning can be solved by depending on student capabilities to identify market problems.

Questionnaire results indicated that most students demonstrated adequate to high confidence in problem identification and teamwork. However, a smaller proportion of respondents reported lower confidence in data utilization and adaptability, suggesting areas for further pedagogical reinforcement. The data shows the need to improve teamwork capabilities at work because effective teamwork plays a crucial role in solving problems successfully. The majority of people feel confident yet supplemental training alongside skills development could enhance the confidence levels of those who remain uncertain and improve group collaboration throughout the organization. The results indicate that respondents feel positive about their team collaboration abilities which supports successful group work and goal accomplishment. Students' teamwork abilities help resolve issues that stem from team members' misunderstandings, poor communication, and difficulties in adapting plans to changing situations. The ability to work in teams becomes essential because students who excel in teamwork demonstrate effective communication which enables them to present their ideas while listening actively to others and grasping their viewpoints to minimize miscommunication risks. Students demonstrate strong interpersonal skills because they display empathy and appreciation for others' work.

A strong team exhibits better adaptability. Team collaboration skills enable students to modify work plans during rapid situation changes through effective coordination and joint solution discussions and decision-making. This is important in dealing with unstable situations and conditions. Teamwork skills not only help overcome communication and adaptation issues, but also strengthen the

team's overall ability to face challenges, develop innovative solutions and achieve common goals more effectively.

The survey results indicate that the majority of respondents, 45%, are very open to feedback and proactively use the feedback as a step towards improvement. In addition, 32.5% of respondents feel fairly open to receiving and applying feedback to improve the quality of their work or products. A total of 15% of respondents felt fairly good in this regard, although there may be room for improvement in how they utilize feedback. On the other hand, there are a small number of respondents who still feel less open (2.5%) or even very unopen (5%) to feedback received. This data shows the importance of a work culture that encourages openness to feedback, as being open and responsive to feedback is essential for continuous improvement. By raising awareness of the value of constructive feedback, organizations can encourage more team members to be more open to receiving criticism and suggestions, which will ultimately improve the overall quality and effectiveness of the organization.

In the recapitulation table, it is explained that one of the obstacles experienced is that students have difficulty in finding the novelty of the product to be created. The problems can be solved by using good skills in receiving and managing input as an improvement. Students who can accept criticism and suggestions openly have a great opportunity to learn from the experiences and perspectives of others. This can be the basis for exploring new ideas and identifying opportunities for innovation that were previously unthinkable. Students can obtain extra knowledge and insights through accepting constructive feedback which they would not have otherwise received. The process helps students to keep learning and improving their skills so that they can better meet the challenges of creating a truly new and innovative product.

Confidence in resilience in the face of obstacles during the problem-solving process was also quite high, although some respondents gave low scores indicating personal challenges in this regard. In addition, most respondents felt quick to adapt to situations or changes that occur, with an average score also above 4, although there were some who felt less quick to adapt. The results of this questionnaire show that Teacherpreneurship students generally feel competent in identifying and analyzing problems and are open to feedback. However, there is room for improvement in the use of data and information and adaptation to change. The ability to receive and manage feedback is also key to overcoming barriers to innovation. Students can design better strategies, identify areas for improvement, and proactively develop creative solutions through the feedback received. These findings address the third research question by demonstrating that students primarily relied on problem analysis, teamwork, openness to feedback, and adaptive strategies to overcome innovation challenges. While most students showed strong resilience and collaborative skills, the findings also highlight the need for structured support in data-driven decision-making and innovation refinement.

This study contributes to the field of language teacher education by providing empirical evidence on how edupreneurship can be operationalized within German language teacher training through product-based learning. Unlike conceptual discussions of entrepreneurship in education, this study demonstrates how entrepreneurial motivation, problem-solving skills, and innovation competencies can be fostered through structured planning, product development, and reflective practices. The findings extend previous research by showing that edupreneurship is not merely an add-on to language education but can function as an integrative pedagogical approach that connects linguistic competence with entrepreneurial action.

The findings have important implications for curriculum design in language teacher education. Integrating edupreneurship into language programs encourages the development of transferable skills such as creativity, adaptability, collaboration, and problem-solving, which are increasingly required in contemporary educational and professional contexts. For language teacher education, this approach supports the preparation of future teachers who are not only pedagogically competent but also capable of designing innovative learning products and educational services. Entrepreneurship pedagogy in language education should therefore emphasize experiential learning, product-oriented tasks, and reflective evaluation rather than solely theoretical instruction.

Although this study was conducted in a German Department, the edupreneurship-based learning model demonstrated in this research is transferable to other foreign language programs and educational disciplines. Language programs such as English, French, or Mandarin education may adopt similar approaches by aligning linguistic objectives with product innovation and contextual learning tasks. Beyond language education, disciplines that emphasize applied skills and creativity, such as educational technology, cultural studies, or vocational education, may also benefit from integrating edupreneurship to enhance students' innovation capacity and employability.

Despite its contributions, this study has several limitations. The research was conducted within a single study program and institutional context, which may limit the transferability of the findings to other settings. In addition, the qualitative design relied on self-reported data and classroom observations, which may be influenced by participant subjectivity. Future research could employ longitudinal designs, comparative studies across institutions, or mixed-method approaches to further examine the long-term impact of edupreneurship on language teacher development and entrepreneurial outcomes.

4. CONCLUSION

This study addressed three research questions concerning the planning process of product innovation, the challenges encountered, and the strategies adopted by German Department students within edupreneurship-based learning. The findings indicate that students were able to design and implement product innovations through systematic stages of planning, development, and realization. The majority of student outputs were aligned with German language learning objectives and took the form of both goods and service products, demonstrating students' capacity to translate linguistic and pedagogical knowledge into entrepreneurial products. These results confirm that edupreneurship-based instruction effectively supports entrepreneurial motivation and innovation competencies in language education.

In relation to the second research question, the study revealed that students encountered multiple challenges during the innovation process, including difficulties in identifying market needs, technical limitations, limited funding for product testing, and coordination issues within teams. These challenges highlight structural and skill-related constraints that commonly arise in product-oriented learning environments. However, addressing the third research question, the findings also showed that students generally responded to these challenges proactively by applying problem analysis, collaborative decision-making, openness to feedback, and adaptive strategies. This indicates that edupreneurship learning not only exposes students to real-world constraints but also strengthens their problem-solving and teamwork skills.

The findings have important implications for educational practice, particularly for curriculum developers and educators in language education. Integrating edupreneurship into language programs can enrich curricula by combining linguistic competence with innovation, creativity, and entrepreneurial thinking. Educators are encouraged to design learning activities that emphasize experiential learning, product development, and reflective evaluation, while institutions should provide adequate support in terms of time allocation, technical guidance, and access to resources. Finally, this study recommends that future research explore the long-term impact of edupreneurship on graduates' professional trajectories and teaching practices. Comparative studies across different language programs or institutions, as well as mixed-method or longitudinal designs, are suggested to further examine the scalability and sustainability of edupreneurship-based models in language education and beyond.

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